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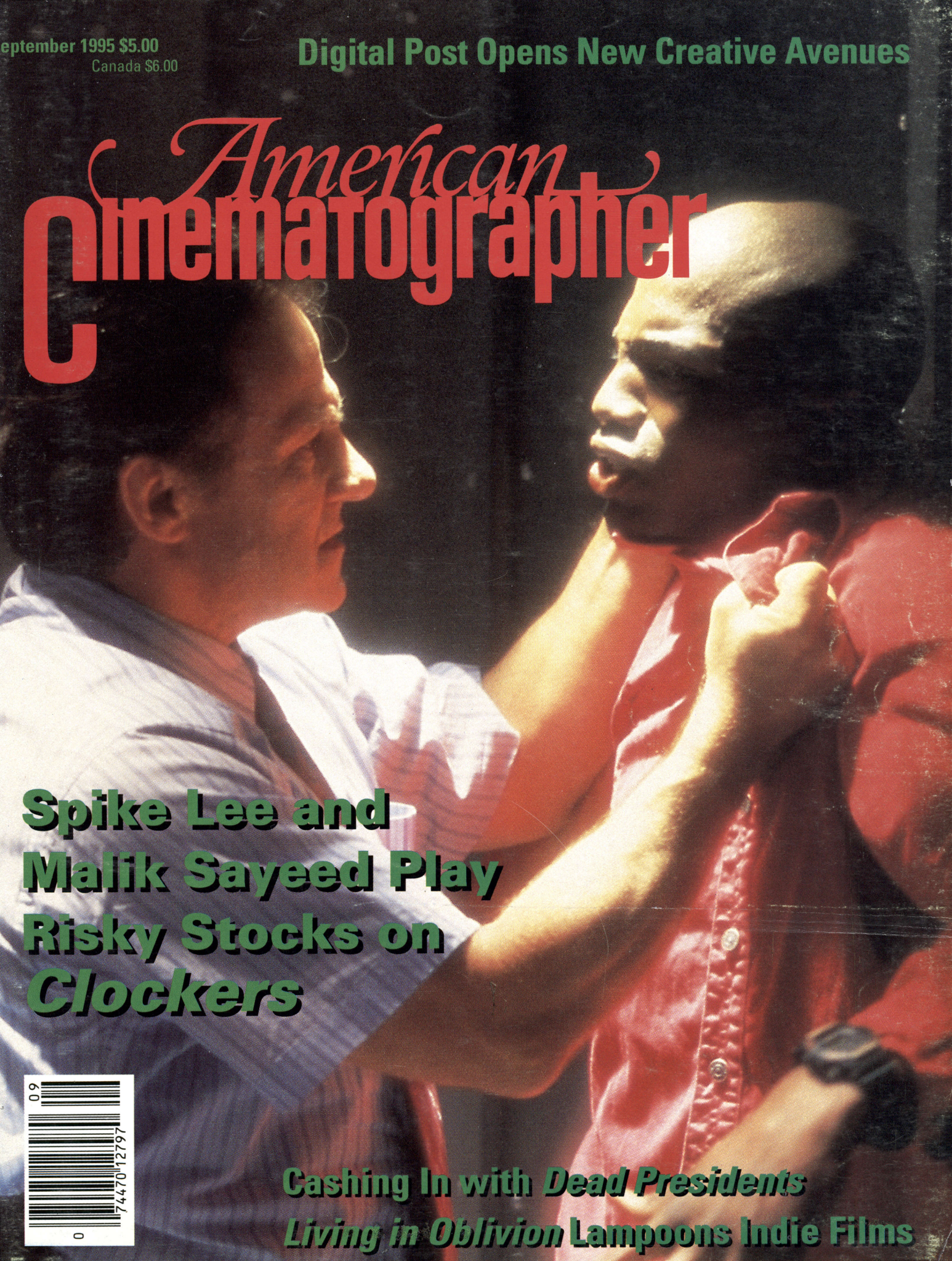

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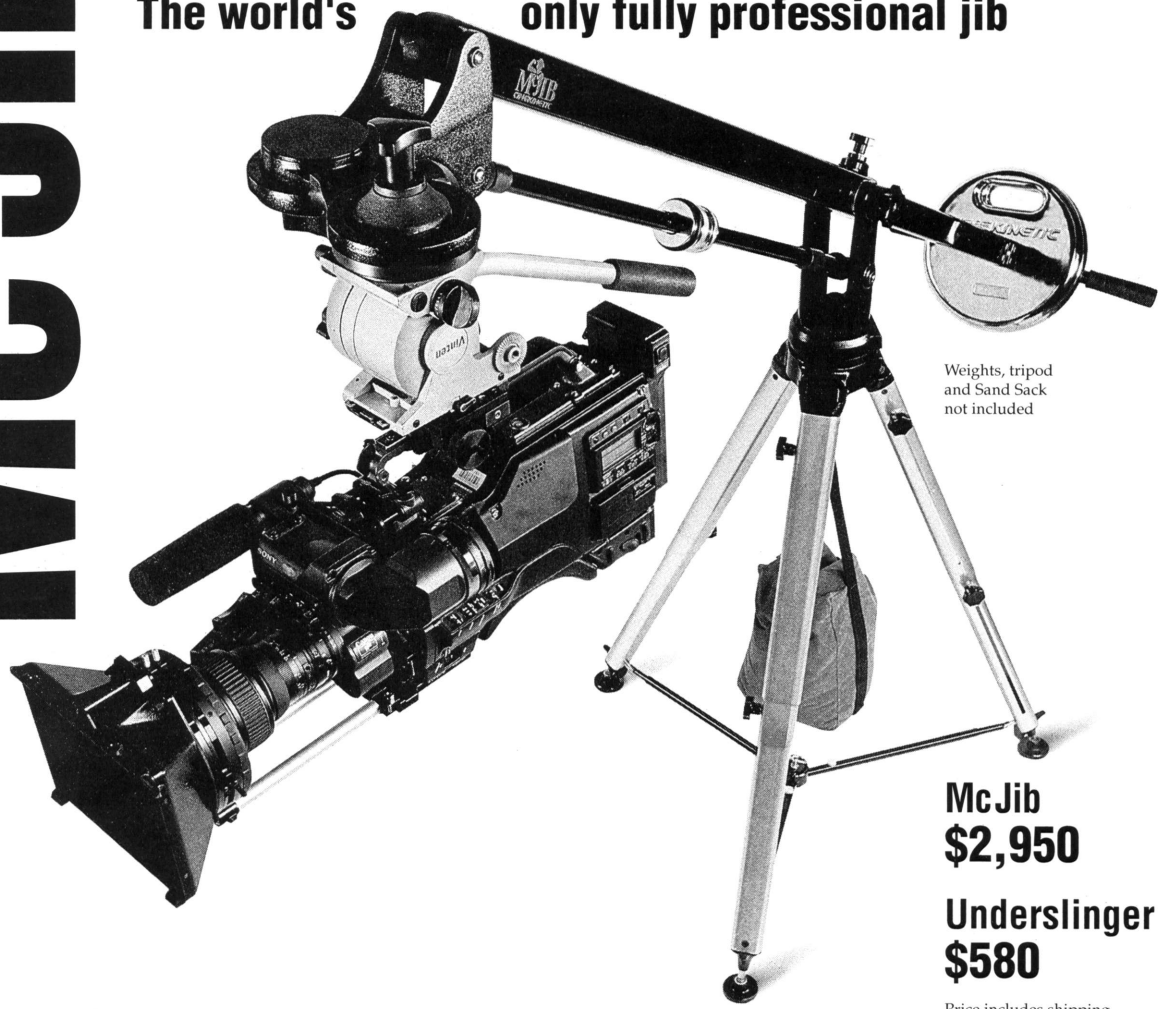

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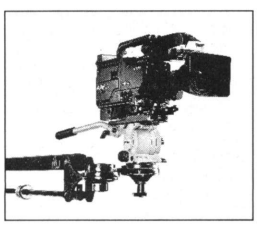

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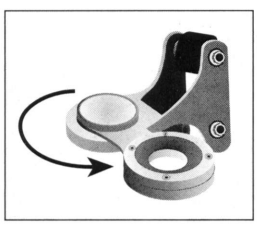

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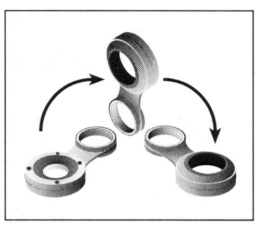

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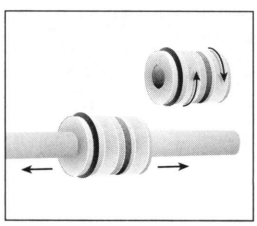

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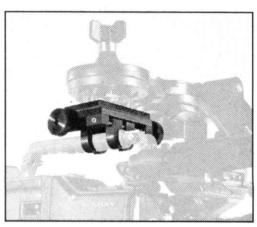

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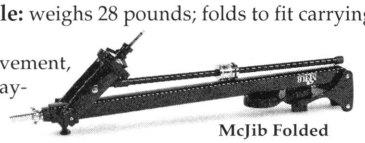

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American Cinematographer

Features

24 *Cutthroat Island:* A New Adventure in On-Set Editing
D/Vision's portable editor allows quick cuts

30 Hollywood Dials into Distance Networking
"Phoning it in" takes on a whole new meaning

36 Between "Rock" and a Hard Place
Clockers takes aim at the crack cocaine trade

48 The Sky's the Limit
Natural conditions dictate approach on *Steal Big/Steal Little*

48

58

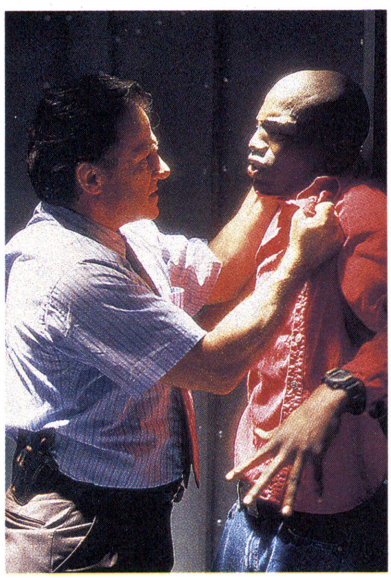
58 Three Moods Prevail in *Dead Presidents*
Cinematography reflects story's dramatic arc

68 A Nightmare Shoot, Played for Laughs
Living in Oblivion pokes fun at the filmmaking process

78 Living Life by the Laws of the Jungle
Dereck and Beverly Joubert capture Africa's natural rituals

Departments

10 Letters
14 Production Slate
87 On the Spot
89 New Products
99 Points East
101 Books in Review
103 Classified Ads
110 ASC Members Roster
111 From the Clubhouse
112 Filmmakers' Forum



On Our Cover:
Detective Rocco Klein (Harvey Keitel) gets tough with a drug-runner named Strike (Mekhi Phifer) in Spike Lee's new film, *Clockers*. Cinematographer Malik Sayeed says his approach to this scene was inspired by the lighting style of Robert Richardson, ASC (photo by David Lee).

Contributing Authors:
T. Colin Dodd
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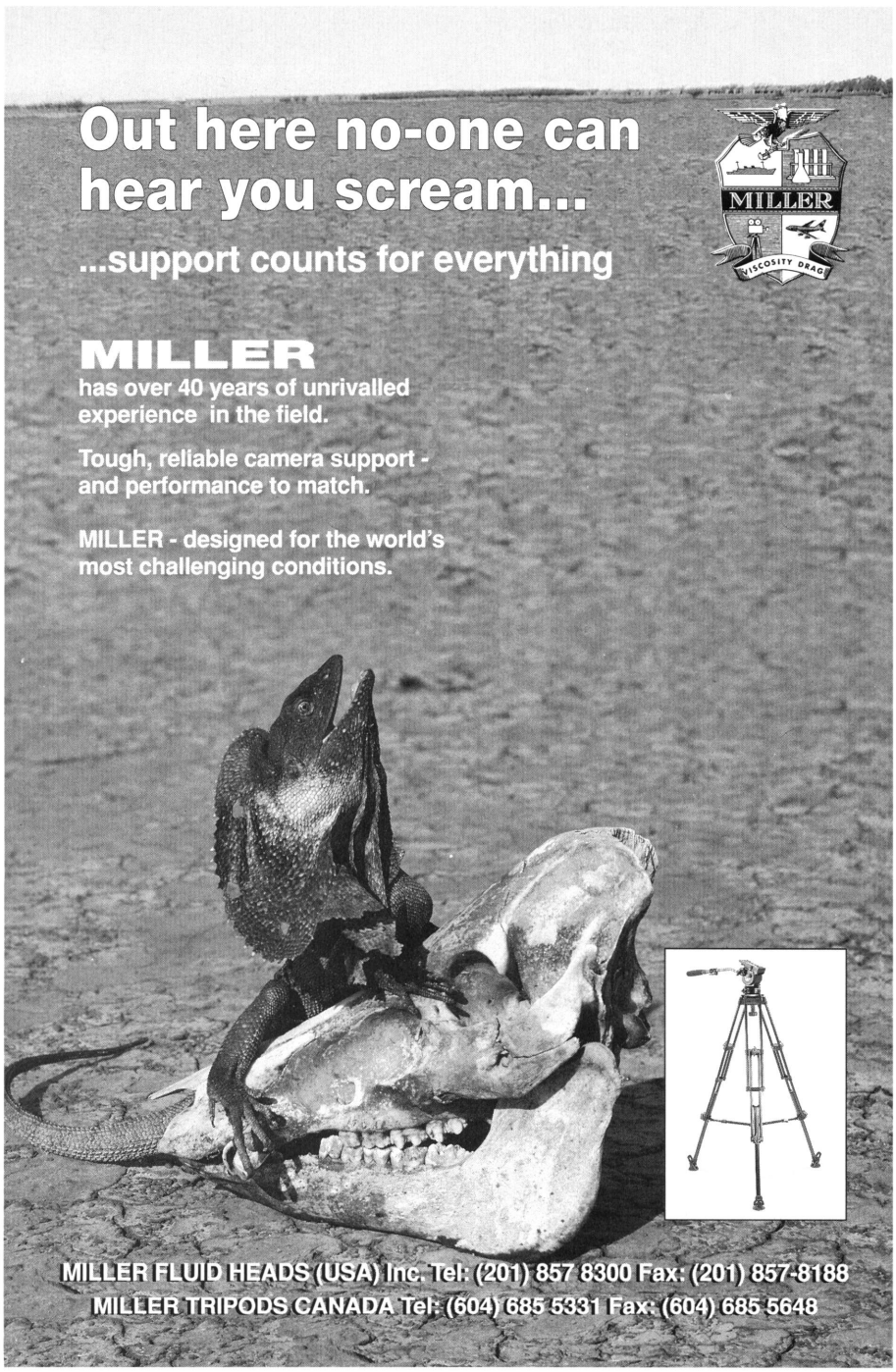
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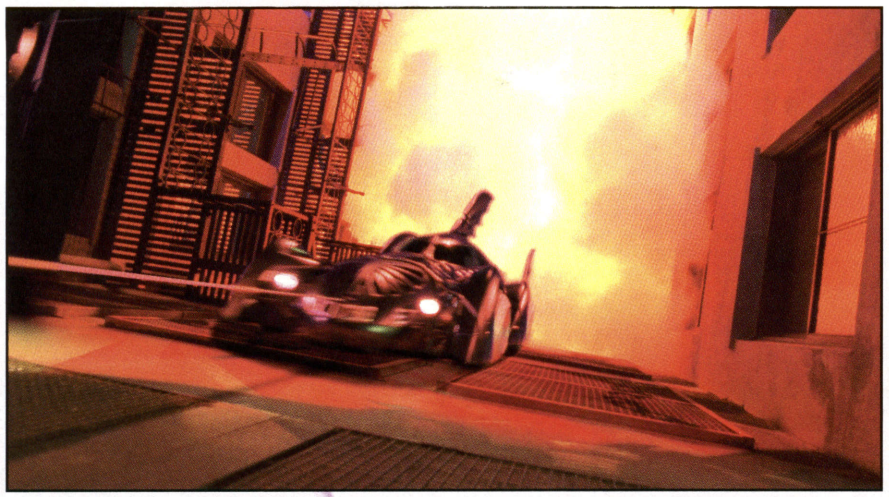

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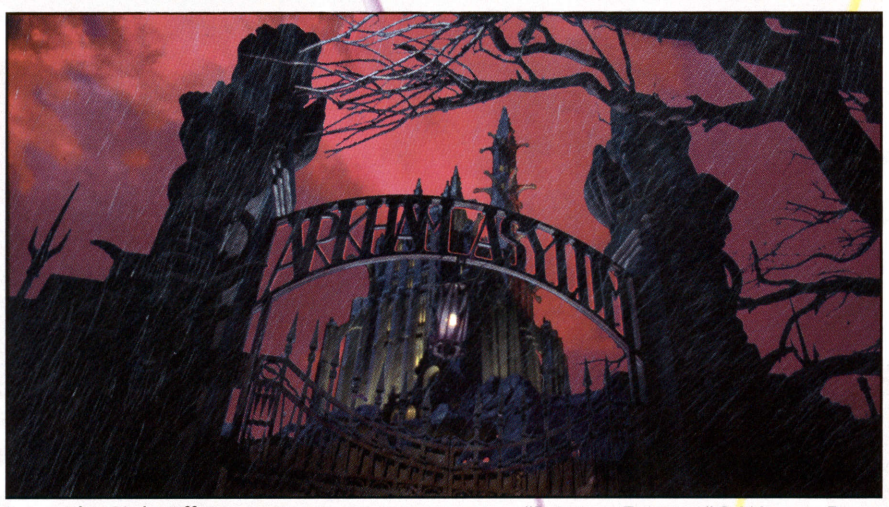

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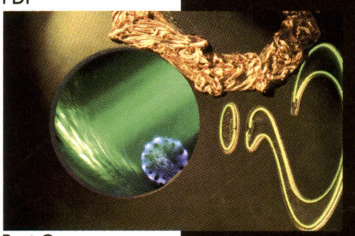

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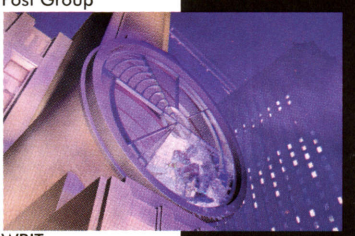

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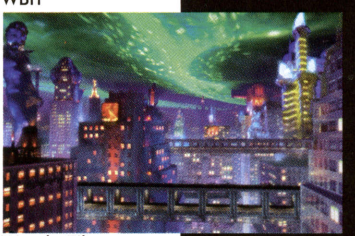

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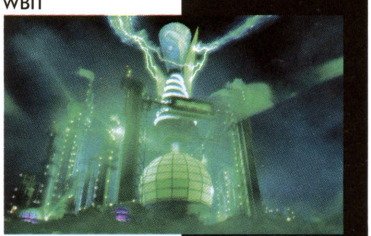

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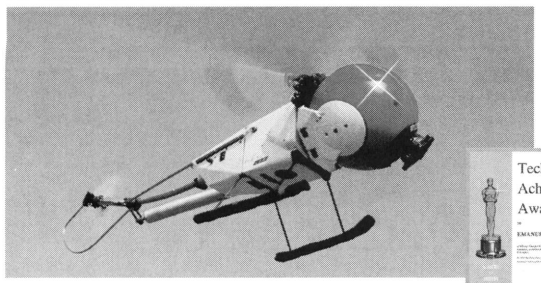

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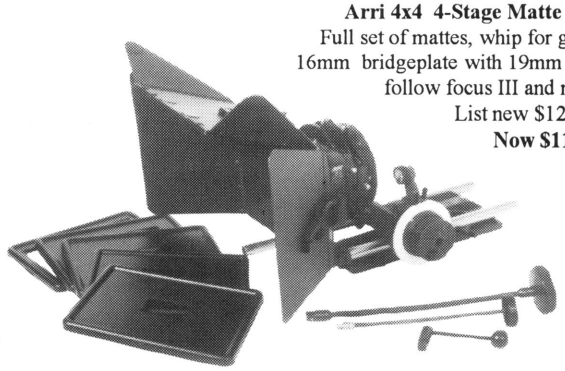

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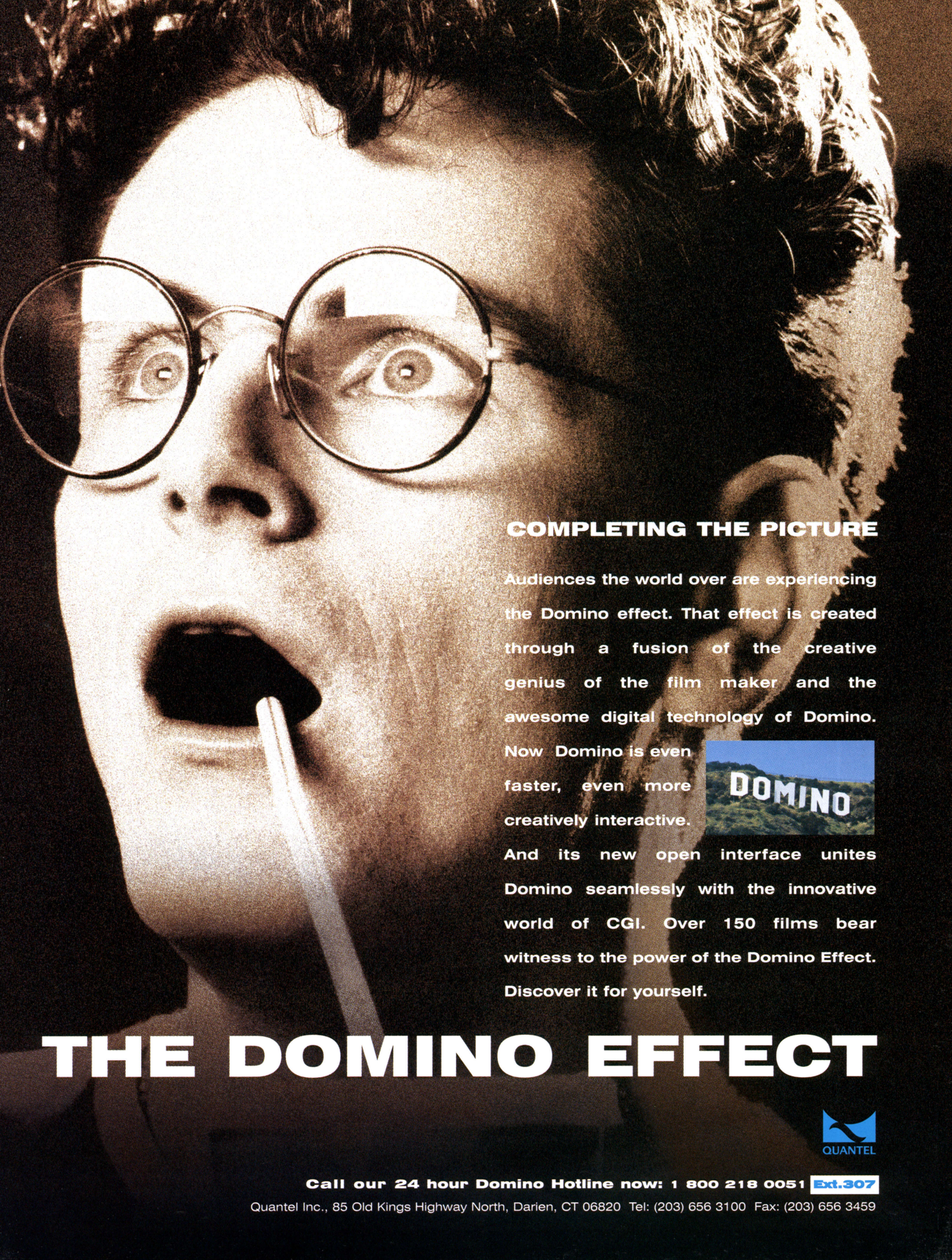

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The SkateCam

Director/Cameraman Don Guy showed us a photo of Jon Fauer's SledCam and asked whether we could make something like it. Director of Photography Jon Fauer had the SledCam made to shoot CBS promos on ice for the 1992 Winter Olympics. It had one central handle and ice skates that tilted.

Don Guy wanted one with wheels, to shoot extreme low angles of an outdoor basketball game for a Kellogs commercial; intense, fast-moving action. He was going to dolly on asphalt, so we used model airplane wheels with pneumatic rubber tires. (We can also let you have narrower, solid wheels for use on carpet.)

You can have all four wheels on swivel mounts; or two swiveling and two fixed straight ahead; or all four fixed. If you want to go in a straight line *fast*, four fixed works best. Changing a wheel takes less than a minute and no tools.

The handle arms can be set to any fixed angle from vertical to horizontal. Alternatively, you can set them so changing arm angle during the shot tilts the camera while all four wheels stay on the ground. You can also pan the camera as the SkateCam moves in a straight line.

The Steadicam Saddle

Garrett Brown originally had this made for him on location, by a grip. After that shoot, he stored it with us and then gave it to us. For repeated use, we made the saddle's Steadicam mount stronger and uglier.

It's not just for rider POV shots. It gives you Steadicam footage as steady as walking shots, but higher up and faster moving. One semi-serious complaint we've had was that the footage looked too smooth to be horseback POV; almost like a helicopter shot. One way to fix that is to include the mane of the camera horse.

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The Camera Shaker

We had this made for us, to simulate explosions and earthquakes. It has two motors in its base, one at the front, one at the back. Above them, the camera baseplate is mounted on a thick rubber pad. There's a remote control box, not shown here.

The remote box has an on/off switch and two potentiometer controls. With those, you can set and vary the *speeds* of the two motors—each motor independently. On the Shaker's base, you can see two large pale-grey knobs. Turning those knobs controls the *distance* of each motor's shake movement.

The front motor moves the front end left and right. The back motor moves the back end left and right, independently. The rubber pad makes the camera wobble every whichway. You can mount a video tap on the ARRI 3 and use a remote monitor to see what's going on.

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Letters

Artists vs. Techs

Congratulations to Filmmakers' Forum (*AC* July) for yet another provocative, thoughtful article, this time by Owen Roizman, ASC.

Yes, they like to present cinematographers as "techs." Yes, we are usually categorized as technicians who have certain learnable skills. (Perhaps in our case reading a light meter?) Technicians are replaceable and interchangeable. Never mind this artist stuff! Is it an oversight that the public is ill-informed about who does what in the filmmaking process? Producers staunchly resist giving full credit to the director of photography. If it developed that audiences would go to a film because they were aware of what we do and who we are, then we would have more power. We would be an admitted factor at the box office and, as such, may expect more, just as actors do.

Below-the-line is an economic description meaning less pay. If we are just making product, if we just fill in the numbered colors on the shooting picture schedule, then, indeed, we are, or will all become, interchangeable technicians.

The word "success" has come to mean making money. Who will argue against money making? Theoretically, technicians don't care what becomes of what they do. Technicians just do their job. Artists can be trouble.

In a past Forum (*AC* Dec. '94), John Bailey said: "I believe we have a great responsibility to the people who see the images we create." A camera may be a mechanical device, but the eye behind it is artful and intentional.

So bravo to Owen. "Cinematographers are artists first, technicians second."

— Haskell Wexler, ASC
Los Angeles

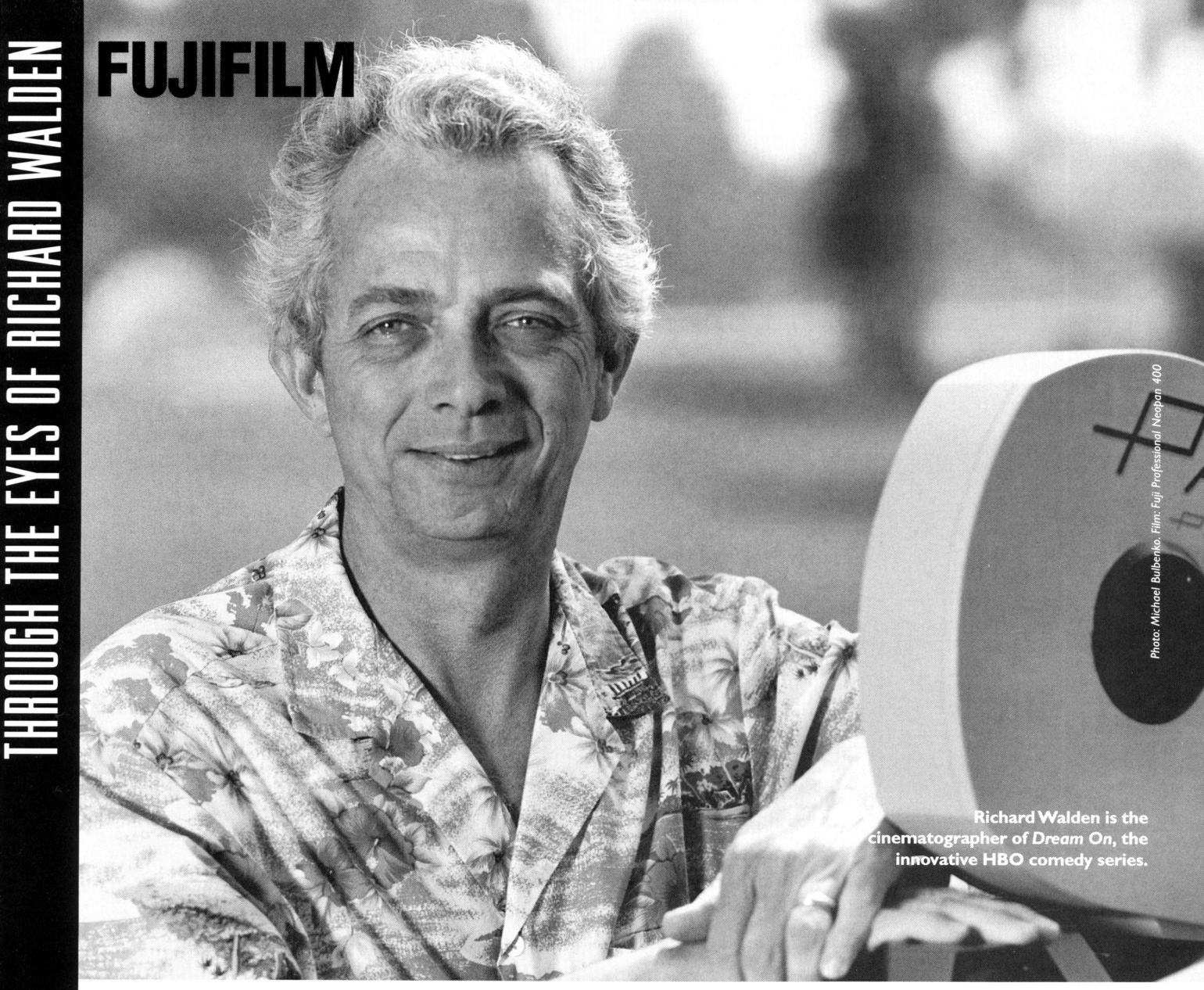
Just a quick note to congratulate you on the printing of Owen Roizman's long-needed piece in the Filmmakers' Forum. What a shame that the hard, dedicated work by so many artists is given such neglect! No wonder the public tends to think that the only creative people on film sets are the actors and directors. Have the marketing departments taken over our industry so totally that the nominated cinematographers, art directors, editors, costumer designers, etc. are only allotted four seconds each, as Mr. Roizman states? Perhaps concerned members of the Academy should pursue this struggle further.

— Bill Waldman
Studio City, CA

Call for Truth in Cineplexes

This evening I went to the local multiplex to view *Crimson Tide*, anticipating the first blockbuster of the summer. The exhibitor certainly expected it as such and booked it in the largest theater in the house. As I entered the hall and saw the massive, wide Scope-formatted screen I began to wonder. "A film that's primarily shot in the claustrophobic interiors of a submarine, shot in a widescreen aspect ratio?" From the beginning it spelled trouble, as did the opening credits, which were at times cut off at the bottom of the screen. But this was only the beginning, for what ensued was a barrage of painfully cropped images. Bisected foreheads and hacked-off knees drew my attention away from the drama of the story, and brought what was otherwise transparent camerawork to the forefront of my attention.

How is such mutilation of the cinematographer's work any different from a panned and scanned video? And yet no mention is made anywhere on the print or in the exhibition hall. After paying a full admission ticket price and expecting to see a film in the medium in which it was intended to be shown, why am I subjected to this? Why don't I at least have the option of shopping around among the four theaters in town playing the film in hopes of finding one which would show it in the correct aspect ratio? I would certainly never rent a panned and scanned videocassette if I could rent a letterboxed laserdisc for about the same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price. Why should a ticket to a first-run movie be a roll of the dice when it comes to matters of visual aesthetics?

Granted, the case is more easily made with video, considering that probably 99.9% of all films must be altered to make them fit what the average audience member considers a "normal" [TV screen]. While the percentage of film prints that are altered to "fill the screen" is probably nowhere near this high, I have seen it happen on enough occasions and at enough theaters to consider it a problem. The disclaimer was put at the beginning of those videos to give some kind of peace of mind to all of those individuals who care about such elements as composition and framing — both behind the camera and in the audience. No cinematographer or operator should have to be held accountable for alterations to his/her work due to exhibitor economics any more than he/she should be responsible for a decision made by another party in the pursuit of "normalcy."

Apart from a standardization of all elements of exhibition, my ultimate wish would simply be for a tiny, unobtrusive asterisk at the ticket booth just below the time schedules for each film being shown: "* indicates films which are shown in original aspect ratio." Such notings have been commonplace for years when noting a facility's sound capabilities (sometimes even finding their ways to the marquees): "Dolby stereo, DTS, THX." Why can't the image, the very essence of any film, be given the same standardization and the same regard?

— Jeffrey Lathery
Greensboro, NC

Praise for *AC*

I want to thank you so much for your magazine. I read it cover to cover and have benefited on numerous occasions from the various insights of the cinematographers you have featured.

— Alex Newsome,
Cameraman
Austin, TX

Please send any comments or suggestions to Letters to the Editor, *American Cinematographer,* P.O. Box 2230, Hollywood, CA 90078. We also welcome information on new products or noteworthy projects, developments or collaborations; please direct such material to the attention of the Assistant Editor.

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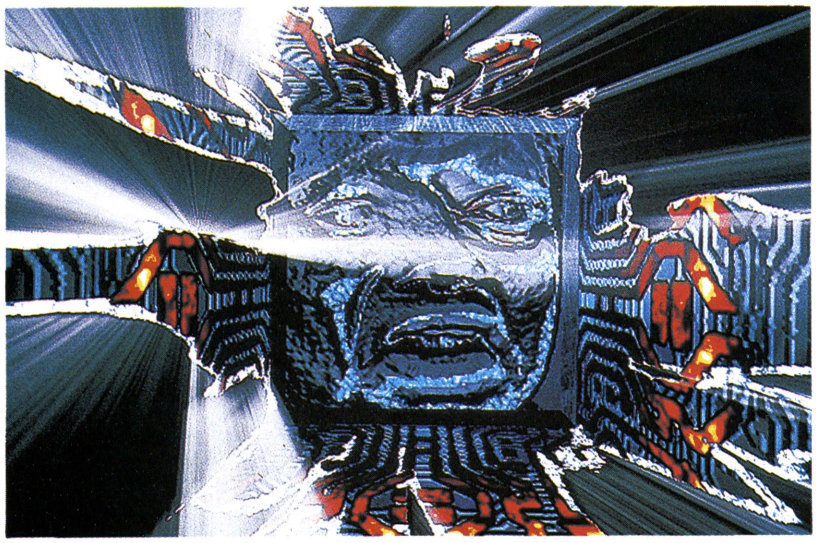
Digital Post Potpourri

compiled by Marji Rhea



A cyberspace hacker meets his demise in the form of a cyberspace virus* in Johnny Mnemonic. *The images were created by Sony Pictures Imageworks, from paintings by Jamie Rama.

Johnny Mnemonic Effects

Sony Picture Imagework's visual effects producer George Merkert and supervisor John Nelson, charged with realizing author William Gibson's vision of cyberspace in the film *Johnny Mnemonic*, worked extensively with Gibson and director Robert Longo in their conceptualization, and used digital production to incorporate the color-rendered paintings of artist Jamie Rama.

In most circumstances, SPI and other high-end visual effects houses use high-end workstations for feature film work. However, system availability and budget constraints limited the use of workstations on *Johnny Mnemonic*.

Confident that SPI's PC department could create the cyberspace look sought by Longo on time and within budget, Nelson challenged Foster and his team to create a series of tests on the PCs. Ten of SPI's best animators made extensive use of Autodesk 3D Studio and Adobe Illustrator to create a 45-minute demo video. While this tape proved to Nelson that PCs could produce the desired result, effects producer Merkert remained skeptical.

According to Foster, Merkert was concerned about whether PCs could provide adequate resolution and whether or not the color and lighting would be up to feature film quality. Of particular concern was an animation of a virtual reality glove that needed to perfectly match the real world movement of actor Keanu Reeves. After an additional test involving veteran effects animator Glen Campbell demonstrated to Merkert that 3D Studio could handle the VR glove scene, production effects work began on two effects sequences.

The first, the cyberspace scene that begins when Johnny dons the VR gloves and headset, incorporates some 17 computer graphics shots largely developed with Autodesk 3D Studio, and relies heavily on fully-colored and lit three-dimensional versions of Jamie Rama's paintings, which were translated into electronic form by digital artist Brumbauer.

During preview screenings of the rough cuts, the scene scored extremely well with audiences. As a result, director Longo came back to SPI to create another cyberspace sequence, this one starting during the opening titles. In it, a signal travels through a highly-stylized Internet of the future until it wakes up Johnny in his hotel room. The new opening, at 80 seconds one of the longest computer graphics shots ever designed and rendered entirely on PCs for a major motion picture, was designed as a single digital piece comprising more than 2,400 continuous frames at feature film resolution.

Autodesk, (415) 507-5000.

New VFX Company

Animators Tim Miller and David Stinnett and producer Cat Chapman have left Sony Pictures Imageworks and established Blur Studio, Inc., a computer graphics and animation company configured to supply digital effects for film, television and video games through its use of low-cost PCs.

While the visual effects companies that dominate the field employ expensive Silicon Graphics Imaging computers, Blur is confident they can beat the big houses' prices, and still turn out high-caliber imagery by using cutting-edge desktop technology.

Located in Venice, CA, Blur Studio has been creating effects for Showtime's *The Outer Limits* and the sci-fi film *For the Cause*.

Blur Studios, Cat Chapman, (310) 581-8848.

Spot Compositing

Magick Lantern Post Productions' Frederike Gravenstein recently developed the digital compositing on a package of national spots for Napa Autocare. Early planning determined that the entire spot would be produced in the

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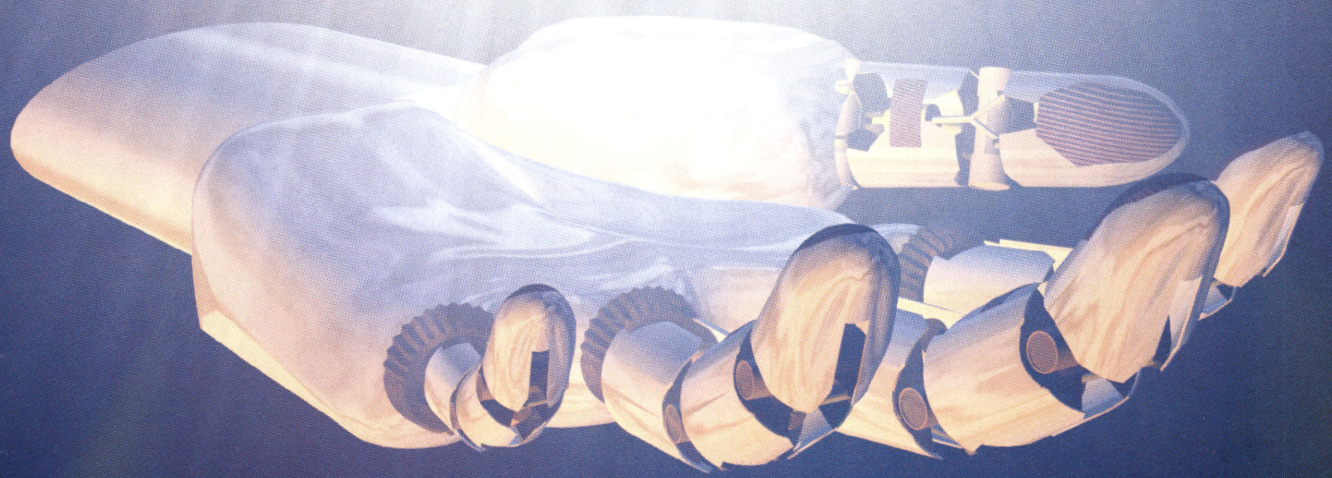

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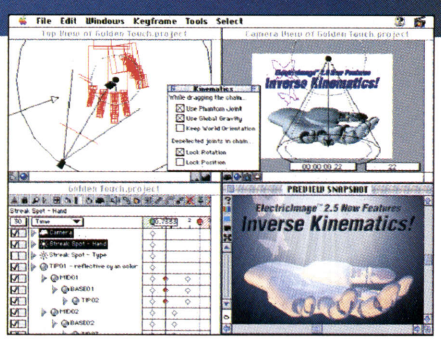

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Quantel Hal Digital Compositing Suite due to the subtle interaction of multiple image layers required by the spot's design — which relays the visual stream of consciousness of the Napa shop owner to the viewer.

Prior to shooting the spots, Gravenstein and Gravity director/cameraman William VanDerKloot discussed the motion and flow of the layers and how the live-action scenes should be shot for optimum manipulation in the Hal suite. All scenes were transferred to Digital Beta utilizing the real-time SteadiFilm process at Electric Transfer/Atlanta. Notes made during the film-to-tape transfer session negated the need for an Avid offline session. The spot went directly from transfer to Hal to air.

Gravenstein's first task in Hal was to create mattes for the various bluescreen scenes. The resultant matte was fine-tuned using Hal's grow function, which pinches the matte edges for a very tight fit. She color-corrected each scene to eliminate any blue spill, and the changes were digitally archived to be accessed when needed. Before compositing, background mixed audio track was loaded to sync with various background scenes.

According to Gravenstein, "Editing the background bed was a straightforward and very interactive process on Hal's clip desk. Being able to pull heads and tails on each clip without having to delete excess video allowed us to fine-tune our decisions before committing the edits. In one scene, an exterior wall was smoothed out by creating a quick custom key and laying in the new sky. Adding the layers consisted mostly of positioning and timing decisions. Once placement decisions were made, a custom air-brushed matte was created for that layer to move through, thus giving it an ethereal feel. With Hal's multi-layer capabilities, I was able to composite up to four different layers at once in conjunction with the air-brushed filter.

"It was great to deal with all of these aspects in one room and not have to spend time in an Avid suite, edit bay or paint system. Once we finished both 30-second spots, they were loaded into the Avid to cut five 15-second spots. Since there were not added effects or layers, the truncated versions were easily conformed in an online suite and everyone was happy."

Magick Lantern, (404) 688-3348.

Digital Brew Man

Planet Blue has provided the digital effects and compositing for the initial TV campaign from Coors Red Light beer. The spots star Big Man, who prowls a film noir cityscape as his shadow illuminates the buildings.

"The agency wanted something jazzy to introduce the new light beer," explains director Chel White of The Underground. "So my interpretation began with a mnemonic; a glowing light that surges and blows out and takes you into the strange world of Coors Red Light."

The logo, a cutout animation of a burst and triangle laid over a Lucite model, was smoked with a light shining behind it. Maury Rosenfeld, president and creative director of Planet Blue, designed an optical glow he termed "retina burn," which turns the opening from a beautiful amber glow to a fiery ball.

Hand-drawn artwork of Big Man and other characters was transferred to transparencies and floated over a circle matte to create the red spotlight. The XL Productions crew dangled from scissor rigs three stories high to project the images onto full-size buildings and cityscapes using 6K HMIs custom-rigged so the transparencies roiled across live backgrounds. In certain instances, however, effects and compositing were required.

In "Beer Run," Big Man follows a red beacon through the seedy warehouse district of Portland, Oregon, where he finally finds a pub and is confronted by Big Woman, who asks where he's been all her life. "Searching for beer," he replies, his arm reaching for a Coors Red Light.

"Basically, they had a beer on a table and they shot that with a red

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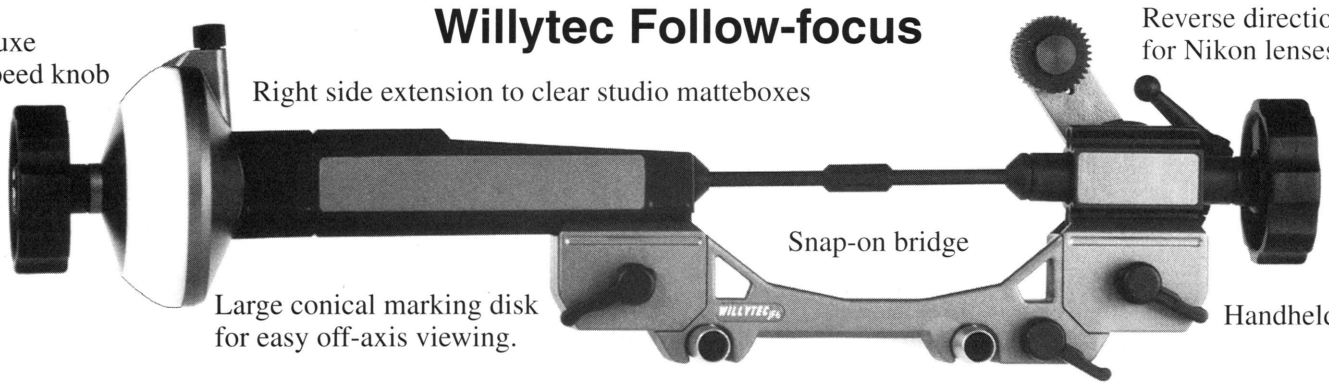

The Willytec Follow-focus system fits on 15mm, 19mm iris rods, mini-rods or top-mount. The bridge is designed with four dovetails (an upper and a lower on either side), so that the zero backlash drive mechanism can slide in and out to get closer to or away from the lens. When using physically long lenses such as the 150-600mm zoom, the right-angle attachment for the drive mechanism will enable the operator to comfortably look through the viewfinder while pulling focus without stretching his arm to reach the knob. The Willytec follow-focus modular system can be easily configured to work in any situation.

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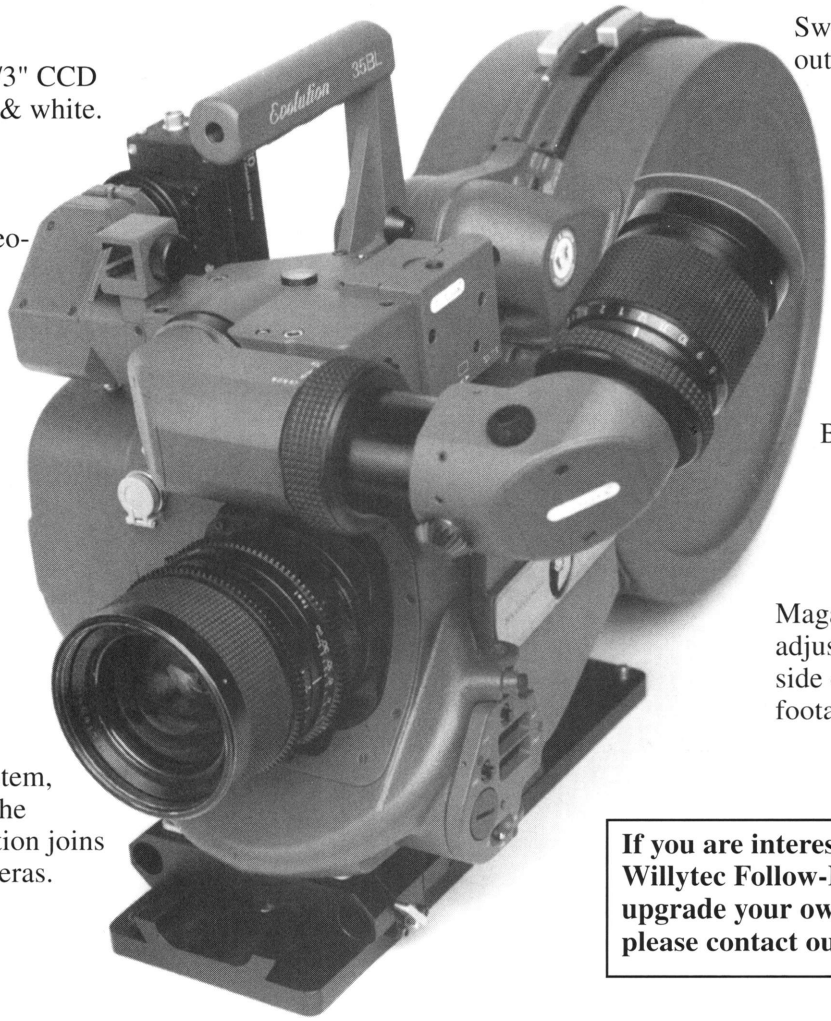

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circle beam behind it," recalls Rosenfeld. "The beer itself had a stick attached to pull it away. I thought the hand would already be rotoscoped to match the stick, but I got a static arm since Big Man was a cutout. I used the hierarchical control structure of the Flame in the Space Station to create an articulated hand with joints. The thumb moves, the hand wraps around the beer and the elbow bends." Rosenfeld also used the tracing and motion-blur features to pan as Big Man reaches a railroad track and gate crossing.

In "Loner," Big Man is projected on the tallest building in the city before he takes off with Big Woman for a Coors Red Light. Rosenfeld had to refine circle beam waffles in several moving shots, rotoscoping and matting in Planet Blue's Space Station to highlight blacked-out windows so they would read red, enhancing the contrast of the circle projected on the building.

In the third spot, "Battle," Big Man encounters three gnarly stick figures heading to the same destination, a bowling alley, where he blows them away with a strike. "As they make their approach to the alley along a building wall," Rosenfeld explains, "a white truck drives by in the foreground, intersecting the scene as their ominous faces grow larger. This was accomplished in post by taking a truck from another scene and tracking its motion to the camera jiggle from the alley shot to make it look real, tracking it along with the camera motion so it all moved in sync, then compositing the near field."

Says director White, "Maury did an amazing job tracking the shots in the Space Station because many involved handheld shots and panning without motion control. He extracted stills and animated sequences of Big Man and comped them with the shadowy figures into live-action scenes shot only with the projection of a red spotlight. I couldn't believe how accomplished he was on the Flame, which beautifully retained the look and integrity of the original film footage while appropriating movements of various elements in the scene."

Planet Blue, (213) 871-8280.

Public Library Project

Broadway Video recently teamed up with Galan Communications Group to produce a 90-second video introduction to a live staged news conference at the New York Public Library, where IBM introduced its Digital Library. Edited at Broadway Video Digital Offline by Joe Castellano, it was produced by Rick Debbie, art directed by John Jamilkowski, and digitally composited by Erik Freeland, all of Broadway Video Design.

The theme of the event, which included several video components, was to bring order to chaos, and used metaphors such as the taming of nature and striking visuals of water and fire. Images quickly flash across the screen while a moving underscore helps convey the feeling of chaos. The subject matter then switches to information and parlays into the order of information. Quick cuts and flashing graphics narrate the force and importance of information being disseminated through cyberspace. In the ending, an IBM executive appears out of the graphic background.

To execute Galan's concept of the exec's emergence, explains Broadway Video Design producer Rick Debbie, "He was shot on a bluescreen and composited over a home page background. We added a Kaleidoscope wave effect on the screen to make it seem as though he was coming right through the background by dissolving him on video as the executive actually came through a slit through in a real screen. The timing ended up in perfect sync."

Debbie continues, "It was nice to be able to bring this job through the whole company. John designed the transition graphics, all of the layering and digital compositing, selected stock footage, offlined for three days in our nonlinear suite, did one day of digital compositing, and then cut it together and added the effects during two days of online. We were able to access images and materials directly from the Internet via Macintosh, such as various home pages, text and graphics. We then brought the images through the paintbox to video. By the time we were finished, we'd used practically every creative service available at Broadway Video."

The IBM Digital Library captures text, art, films and music, which can then be transmitted electronically over computer networks anywhere in the world. Some of this information is likely to be available on the Internet and is now focusing mainly on large corporations, universities and cultural institutions.

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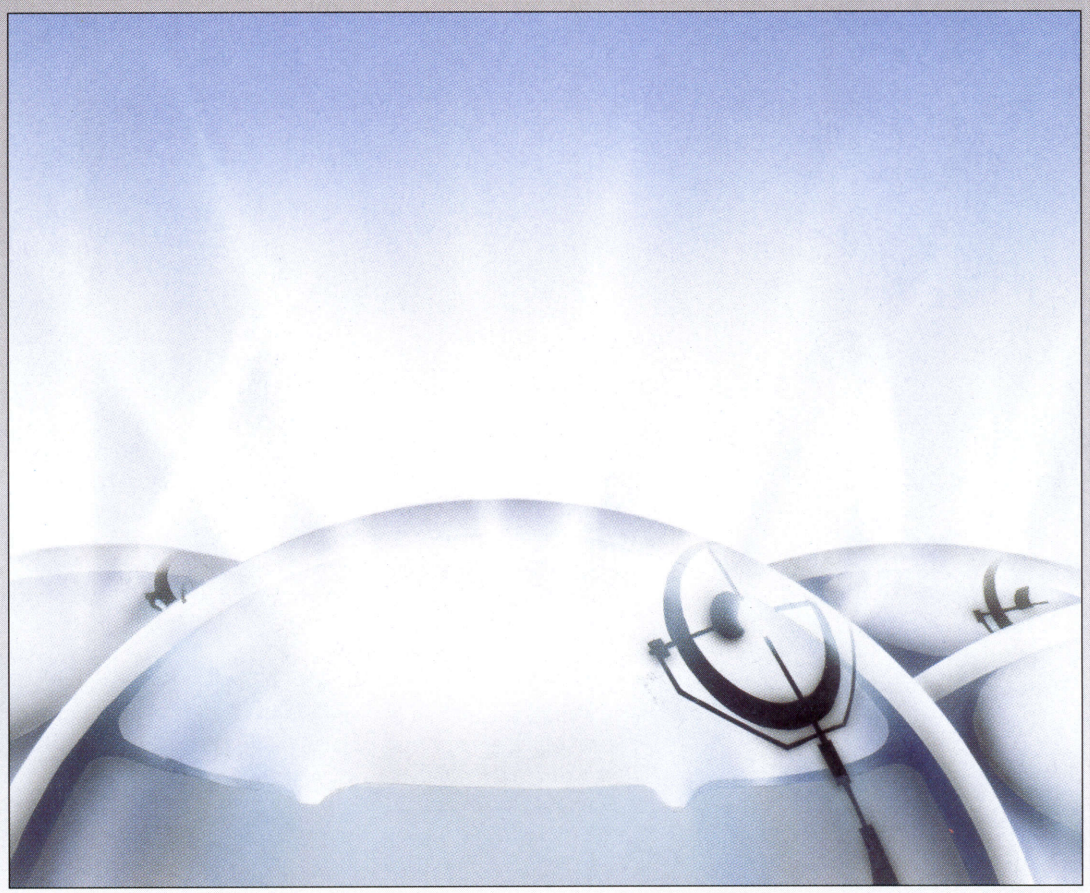

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Broadway Video has transformed an additional 8,000 square feet of space to accommodate their new divisions, now known as Broadway Sound and Broadway Video Duplication, and to create a new home for Broadway Video Design. The latter department's body of work includes network ID packages, show opens, promotions and new media projects. The team just completed a redesign for the new cable network NewsTalk Television.

Broadway Video, (212) 265-7600.

Industry WWW Sites

Three Web sites to spring up recently belong to EntertaiNet; the George Eastman House, an international museum of photography and film; and the Academy of Television Arts and Sciences.

EntertaiNet provides a global source listing of people, productions, production resources and peripheral professionals servicing all aspects of the entertainment industry. Users can search for and cast talent, hire crew, rent equipment, choose a location, post audition/hire notices, distribute press releases, etc. Movies and theatrical production will be listed in the What's Playing Directory, which can be searched by a number of criteria including production name, location, theater name, start time, and type of production. Photos, resumes and eventually audio and video messages or auditions can be listed, and a variety of industry brochures, rate cards, and application forms can be downloaded and printed.

EntertaiNet can be contacted on the Internet at their temporary home at http://www-entertainet.fastlane.net. Their permanent home will be http://www.entertainet.com; their phone is (214) 869-4714.

Designed and created as a class project by graduate students in the Department of Information Technology at Rochester Insitute of Technology, the George Eastman House interactive museum includes a virtual tour of the house, gardens and exhibits, information about the library, research archives, special educational activities, a calendar of events and links to related museums and academic institutions. The URL address is http://www.it.rit.educ:80/~gehouse.

The Academy of Motion Picture Arts & Sciences web site will initially contain the Primetime Emmy nominations along with awards information and details on the Academy's activities and programs. The Academy will continue to expand its site during the year to offer various materials such as interviews with television pioneers, audio recordings of Academy seminars, and links to other entertainment-related sites on the Internet. The address is http://www.emmys.org/.

Merger

Gastown Post & Transfer and Gastown Film Labs have merged with Rainmaker Imaging and Rainmaker Interactive to form Rainmaker Digital Pictures Corporation. Gastown Film Labs and Gastown Post & Transfer have offered a wide range of postproduction services to the film and television production community. Rainmaker Imaging offers high-resolution imaging, digital compositing and computer-generated effects for the feature film industry; Rainmaker Interactive provides technical and development services to interactive multimedia producers.

Rainmaker Digital Pictures Corporation, (604) 872-7000.

New Filmlook Facility

Filmlook, the Burbank-based postproduction company that gives the look of film to video-shot productions, has opened a new facility in Burbank. The new Filmlook hardware will give flexibility to a variety of adjustments, including gamma variations and frame rate. The process will also have further enhancements such as flicker simulation. The first television production to use the new system is the Disney pilot *In the Mood*. Recent network programming to receive the Filmlook treatment include *The 1995 Sports Illustrated Swimsuit Special*, *Muscle*, *The John Larroquette Show*, *Beakman's World*, and *The Nanny*.

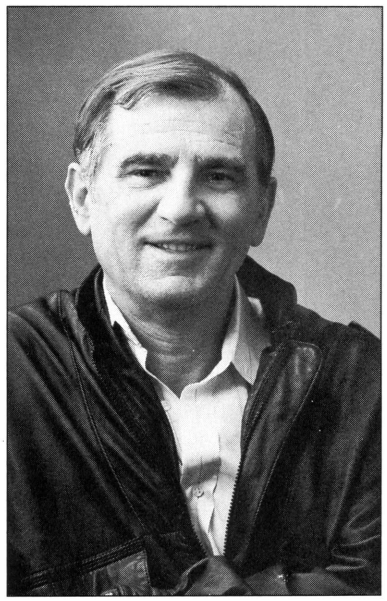
Filmlook, (818) 955-7082.

Film Grant Awards

The Roy W. Dean Film Grant Awards, now in its fourth year, benefits documentary filmmakers. For information contact Keith Vezensky or Charles Geary at (213) 654-6693.

Please see New Products for a list of upcoming events.

"In its zoom range, it's the sharpest we've tested. And the quality control means we don't have to select the ones we buy."



Otto Nemenz is the President of Otto Nemenz International

Otto Nemenz on the Cooke 18-100mm T3

"We stock all the wide-angle zooms, so people can choose," says Otto Nemenz, "But we have three times as many of the Cooke 18 to 100s."

"The Cooke is the best of them, particularly at the wide end, which I feel is the most important—that's where you're trying to record the most detailed information. And that's where distortion shows up."

"In that zoom range, it's the sharpest lens we've ever tested. It's also very quiet—no noise radiation. The Cooke 20 to 100 used to be the sharpest in that range. The 18 to 100 is slightly better; and the difference between 20mm and 18mm is significant."

"This Cooke is also the shortest and lightest in its zoom range. And more of its weight is back near the mount, so it's easier to balance the camera. Color matching is good with Zeiss hard lenses."

"Lens maintenance is not a big issue. Quality control at the factory is another matter. With some makes, you can take a batch of new lenses and their optical quality will vary between 70% and 100% (with 100% being the best)."

Cooke zoom lens system

At far left: 25-250mm Cinetal T3.7. At near left: 18-100mm T3. On both lenses, the maximum T stop holds true for entire zoom range.

"On the other hand, the Cookes we've tested have all measured between 95% and 100%," says Mr. Nemenz, "So we don't have to select the ones we buy. They're consistent."

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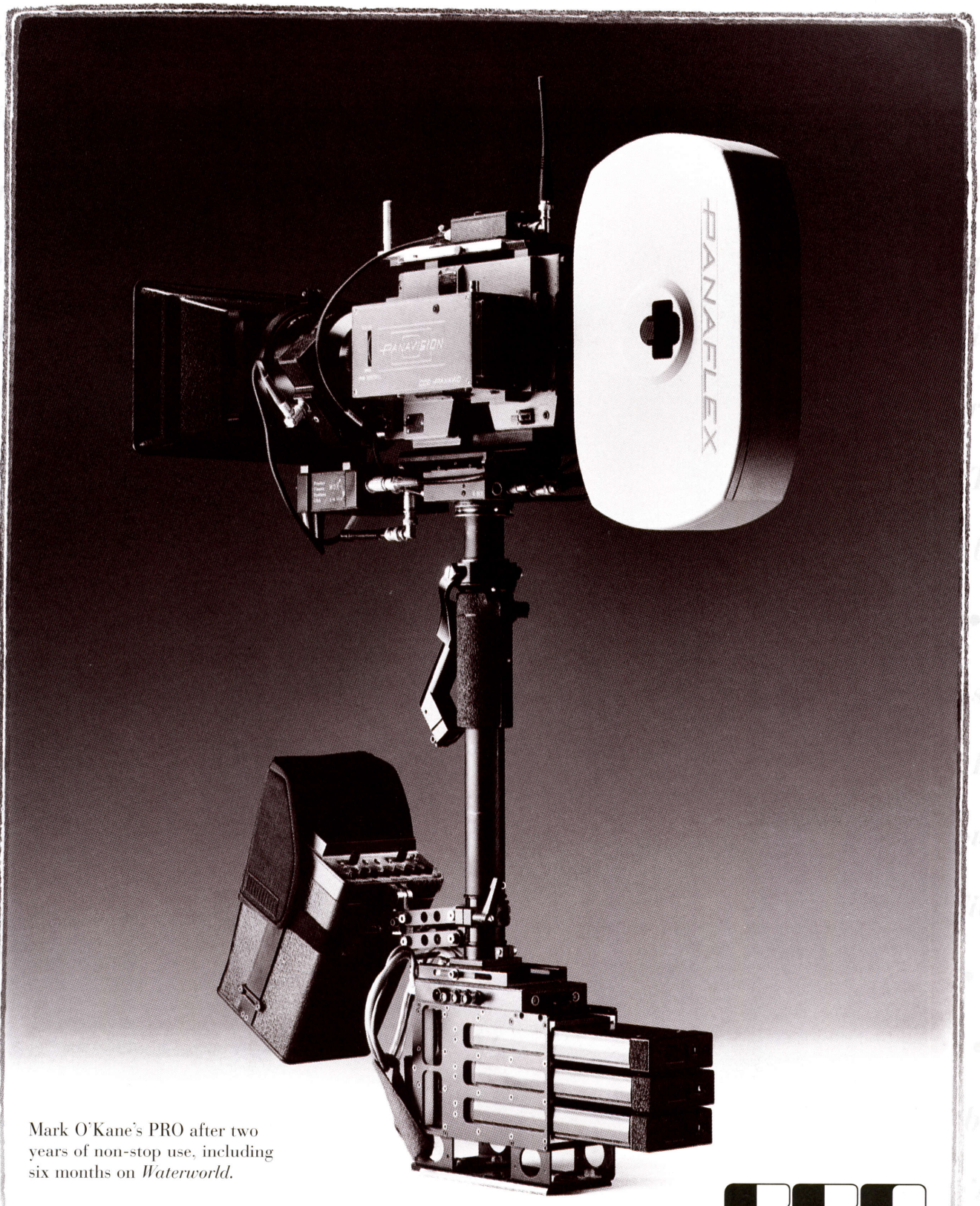

Mark O'Kane's PRO after two years of non-stop use, including six months on *Waterworld.*

Photo: John Livzey

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Cutthroat Island:
A New Adventure in On-Set Editing

D-Vision's portable editing machine casts off in the upcoming pirate epic.

by Debra Kaufman

When does a postproduction tool become a production tool? When the film is a complex, multi-camera action-adventure, filmed in exotic locations halfway around the world from Hollywood.

On such a project, the videographer can take a leading role in making certain the director is getting the coverage he needs. That's what videographer Dan Moore did on the set of *Cutthroat Island*, directed by Renny Harlin. During the shoot, Moore used a D-Vision nonlinear editing system — ordinarily used as a postproduction offline tool — to digitize footage as it was being shot, put together rough cuts, and enable Harlin to make certain that he had complete coverage, especially for the film's intricate action sequences.

"There was a tavern sequence with sword fighting and an enormous number of cuts," remembers Moore. "This sequence, which is about ten minutes long on film, took about one and a half weeks to shoot. I was inputting it all directly into the D-Vision, and between setups, I'd cut what I already had and assemble things as I went along. By the end of the last day of filming, I had a cut sequence for the scene. I polished it up, added music, and Renny was able to see what it looked like."

Cutthroat Island used up to nine cameras at times, so Moore had an enormous amount of material to deal with — too much to digitize entirely on the set. Because of his enthusiasm for using the D-Vision, after a 12-hour shoot, Moore would hole up in his hotel room and work for two hours to digitize one or two takes from each scene into the D-Vision.

"The system digitizes in real time," he explains. "But I'd only digitize one or two takes from one scene, going from A camera to B camera, then C camera, and so on, then going to the next scene. I really had to work consistently, day after day. If I did a bit at a time, it didn't become overwhelming."

After digitizing footage, he often spent his Sunday (the crew's only day off) rough-cutting a scene together. "Since they were action sequences, they would often be shot over a number of days, just because of the complexity of doing them," says Moore. "I would put all these circle takes in and, working from Renny's meticulous storyboard, I'd go back and start cutting. I was able to show Renny a cut shortly after we'd finished a scene. Sometimes I would be able to cut a second version as well."

Moore reports that there were a number of times that this technique allowed Harlin to get another shot for the scene.

"Generally, we were in the same area, so he was able to add it to the shot list of things that needed to be done," Moore continues. "Another benefit of using the D-Vision system to create rough cuts was that Renny would be able to take a look at the rhythm of the scene and know how it was moving. He'd also be able to know how long the scene was running. All the scenes are timed by the production company, so he'd ask me how long each scene turned out as I cut them. If you've got a six-hour movie at the end, you're in trouble."

To a degree, Moore was also able to incorporate effects. In one slo-mo sequence, a villain tries to decapitate Geena Davis' heroine with a chain attached to his hand. A shot of the chain wrapping around a post, just missing Davis' head, was filmed in reverse. To get the effect, Moore took the footage into the D-Vision, reversed it and showed it at the proper frame rate, 18 fps.

"D-Vision's variable speed function was very helpful," says Moore. "I cut that piece into the edited sequence, and I could show Renny immediately what it looked like, in reverse and slo-mo. He could see that it worked. He wouldn't have known so quickly without D-Vision."

In addition to the D-Vision's effects capabilities, Moore also used a chromakey switcher which enabled him to composite a plate shot of a background with video of foreground characters in action.

"Even though the D-Vision can do these effects — and future upgrade software will enhance this — for now I'm able to use the other equipment I already have on video and then put that into the D-Vision," explains Moore. "The D-Vision integrated with the other tools that I use as a video assist engineer makes the scene work."

Perhaps of greatest importance, the very light and very portable D-Vision system was the ultimate practical tool for a film whose exotic and rugged locations included a beach in Thailand and a cave on Malta. The system had been customized for Moore's Westlake, CA-based Eaglevision company (which he co-owns with partner Tom Loewy) by Metro Video Systems, a division of the Metro Digital Group Inc., the Los Angeles dealer/systems integrator for D-Vision. Since D-Vision is PC-based software, Metro Video Systems is able to create customized hardware that is both portable and rugged.

"Dan's system fits into a black

cube that he actually built," explains Metro Digital Group CEO Todd Brown. "Into that, we integrated a custom rack-mounted computer chassis, two small LCD panel monitors, Hi8 decks, a routing switcher for patching video, and a sliding keyboard tray. This is all in a very small cube — two by two by two — that's light and portable."

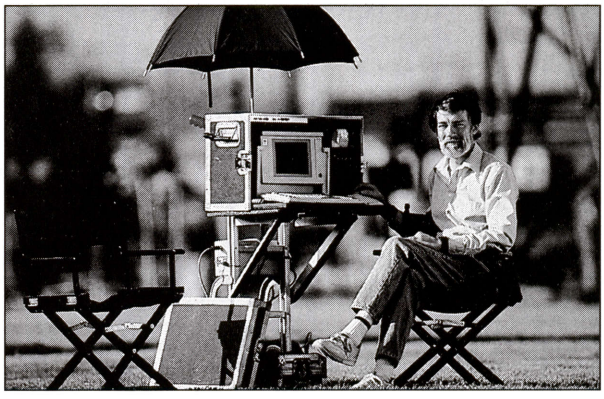
This configuration enabled Moore to tote the nonlinear system from location to location and then back every night to his hotel room for digitizing and editing. By the end of the shoot, he had captured and cut one and a half hours' worth of material, which he estimates at between 50 and 75 percent of the movie; if it had been a one-camera show, he believes he would have been able to get 90 percent.

Cutthroat Island was not the first film to take advantage of D-Vision as an on-set editing tool. In fact, Metro Digital Group partners Brown and John Pankratz — who have a combined background in video assist operating and computers — saw the potential of making the software-based D-Vision into a portable editing tool several years ago. When Arriflex came out with the 535 camera, Brown and Pankratz saw the possibilities of linking the two. "Here's a camera with time code, and an editing system with time code that can edit on the set," points out Brown.

Arriflex invited the partners to demo their portable D-Vision system at an open house, to what Brown calls "enthusiastic response from cinematographers, producers and video assist people." One of the video assist operators who saw the system was Ian Kelly (of Kelly's Eye), who promptly bought one.

"I thought a nonlinear editing system would be the coolest thing to have on the set," Kelly remembers. "I wanted one that would fit in a box that I could carry onto the set."

In fact, Kelly had Metro Digital design his portable D-Vision system to be the size and shape of a large lunchbox. In addition to its light weight and portability, Kelly also liked the idea of a D-Vision editing system because, as a PC-based system, off-the-shelf components and repair services would be available all over the world.



Photos courtesy of D-Vision Systems, Inc.

Video Engineer Dan Moore (left), on location in Thailand for* Cutthroat Island, *and* Forrest Gump *videographer Ian Kelly (below) have both taken advantage of D-Vision's portability, with exemplary results.

"When I picked it up, I thought, 'What have I done?'" recounts Kelly. "'I just spent $25,000 on a piece of gear and I don't know what I'm going to use it for.' But I was wrong. I've used it on every single project since then."

Soon after he bought the system, Kelly brought it onto the set of *The Flintstones*, pairing Stone Age antics with Digital Age technology. The D-Vision was especially crucial for the film's opening and closing title sequences. Because the length of the shots had to match the music exactly, Kelly laid down the storyboard and then cut the action sequences — which were filmed over a three-day period in a rock quarry in Sun Valley — shot by shot. Since the production schedule didn't allow the second-unit crew to see dailies, Kelly's storyboard assembly let them know exactly what they needed to shoot.

"Sometimes we need to know before we leave a location that we have all the shots that make a sequence work," says Kelly. "We can't know two days later that it's not complete. With D-Vision, I was able to cut completely out of order, exactly like a word processor, and lay down music or narration. It was a huge success on *The Flintstones* and I knew I'd never go back to cutting videotape again."

After *The Flintstones*, Kelly went straight to *Forrest Gump*, where he again used the D-Vision to cut together sequences on the set, laying down the pre-recorded narration.

"Because *Forrest Gump* was a series of vignettes with a long shooting schedule in so many locations, being able to show the crew a series of scenes building into a movie was encouraging and fun," says Kelly. "I was able to cut the shrimp boat sequence the night after the shoot and show it to everyone the next day. When the shrimp boat hit the dock, everybody laughed because it worked."

After *Forrest Gump*, Kelly took his editing lunchbox on the set of *Casper*,

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where he had to help figure out a way to make the actions of the computer-animated ghosts — which would be added long after the shoot — clear and comprehensible during the filming of the live-action sequences. Technical advisor Phil Niebling drew the ghosts with a paint package running on an Amiga computer, and fed his drawings from the Amiga into Kelly's switcher along with the live video feed from the camera. The combined image was re-recorded into the D-Vision, which allowed Kelly to cut the sequence together with live action and animation combined.

"That way, we could build up a sequence and you could see the entire scene, with the live action and the ghosts," says Kelly. "It became important later on when Industrial Light & Magic was creating the real 3-D images. It was crucial to provide them with a very accurate description of what the ghosts needed to be doing. Phil and I gave ILM our work to use as a blueprint."

> "When you put this kind of tool in peoples' hands, they use it in ways you never thought of. They absolutely reinvent the way technology is used."
>
> — Rich Radi, D-Vision

Kelly's inventive and pioneering use of the D-Vision was what initially drew fellow videographer Dan Moore to it. Moore has been a video assist operator since 1983 (feature film credits include Martin Scorsese's soon-to-open *Casino*). He had occasionally assembled rough cuts on the set of commercial productions, using two VHS decks. But the equipment was cumbersome, the process was time-consuming, and the results were far from frame-accurate. The advent of Hi8 allowed Moore to make his setup smaller and more portable. And he continued to follow the development of the early nonlinear systems, thinking that the nonlinear editing device was a good match for the rough assemblies he was attempting on-set.

Moore was looking seriously at the Macintosh-based Adobe Premiere when Kelly showed him his new D-Vision system. Moore was sold. "After Ian's demonstration I contacted Metro Video and talked to John Pankratz about it," remembers Moore. "I drew a diagram of what I wanted and then did research on LCD screens and lightweight, low-power consumption monitors. And I actually made a case to incorporate the technology into a small box, so I could wheel it out on a set or on location."

Shortly after he'd invested in his own system, Moore sold director Barry Levinson on the idea of using it on the set of *Disclosure*, showing him sequences he had edited on the set (in Hi8) of *Wyatt Earp*.

"He thought it was great," says Moore. "I told him I'd be using a nonlinear, computer-based system, not a tape-based one. And it was a selling point for me to get onto the show, because Barry thought he'd like that."

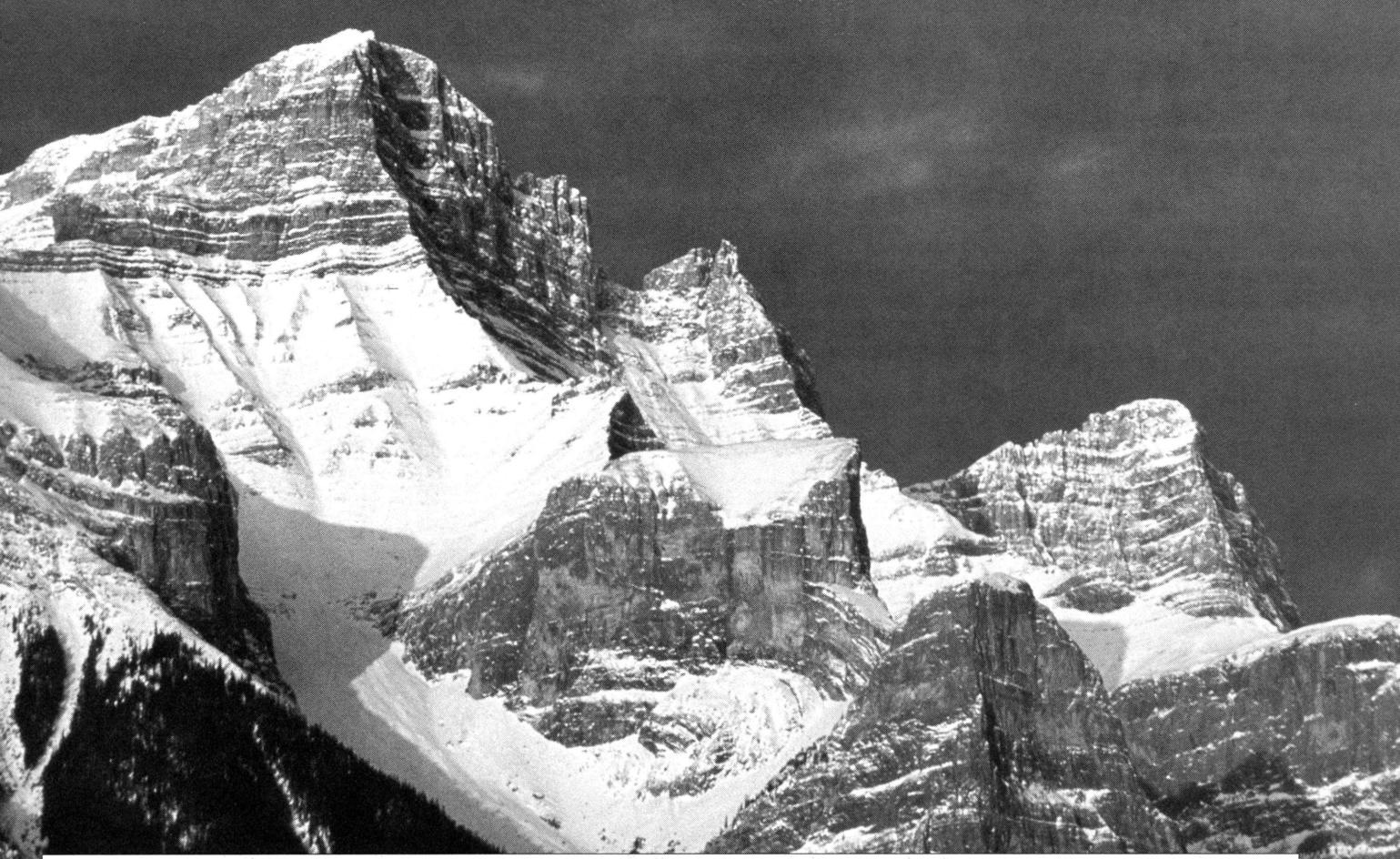
Moore was satisfied that his vision of how the D-Vision would work actually came to pass on his first project using it.

"I could cut a sequence together incredibly quickly compared to videotape," he reports. "There's no shuttling. And you have so much more versatility. It enabled the director to make sure he got the shots he wanted. The system was so quick that I would show Barry the cuts, he'd tell me what changes he wanted, and I'd make a second and sometimes even a third revision."

According to Moore, his successful use of the D-Vision on *Disclosure* taught him a lot about how to make the system work even better for him. He upgraded to smaller, lightweight monitors and added a switcher that allowed him different inputs (including music and audio effects). His new, improved system also contained a CD-ROM player for CD playback, a data backup machine to augment the hard drive (for storage), and Hi8 decks for recording from multiple cameras (which is later input into D-Vision).

During the filming of *Disclosure*, Moore interviewed with Harlin about *Cutthroat Island* and showed him how he was using the D-Vision on the set. Harlin was enthusiastic and the rest is swashbuckler history.

Metro Video Systems' Brown reports that Kelly and Moore — though



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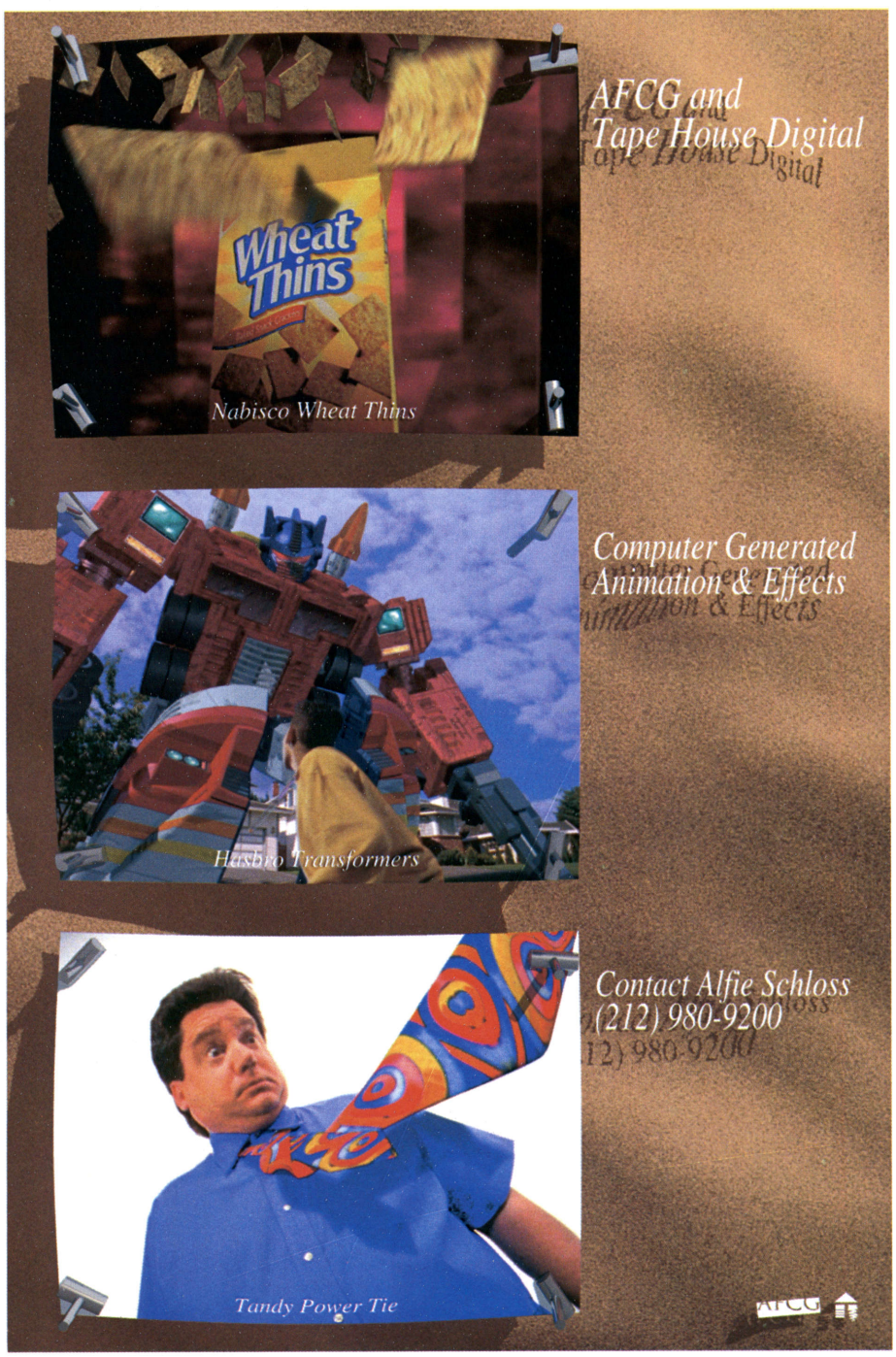

the first — aren't the only videographers to use a portable D-Vision editing system. David Katz (of Katz Eye Video) is currently using his own portable D-Vision on the set of *Father of the Bride II*. And Brown also notes that Kelly's lunchbox and Moore's black cube are only two of many possible D-Vision configurations.

"A third configuration that we've used is a rack-mounted chassis that has a built-in eight-inch CRT screen," he reports. "Though it's a bit heavier, it is very rugged, and some people prefer the abilities of a real picture tube. There are a lot of options. Every video assist application is different and they all have their own wish list."

One wish is about to be answered by the manufacturers. D-Vision vice president of worldwide sales Rich Radi reports that the company plans this month to roll out D-Vision OnLine, a broadcast-quality portable editing system. Though D-Vision OnLine is targeted at TV news applications (with the idea that stories can be edited and broadcast on location), videographers Moore and Kelly, who have been using the D-Vision Pro offline system, will also benefit from the improved picture quality along with the continued benefits of light weight, ease of use, portability, and cost effectiveness. "I will upgrade to OnLine, not only for the better resolution, but because it incorporates changes we've asked for that will just make D-Vision quicker, easier, and more versatile to use on set," reports Moore.

Moore recently used his D-Vision system on a commercial for Papa John's pizza, much the way Kelly did for the opening sequence in *The Flintstones*. After shooting the storyboard and recording narration, Kelly replaced images on the storyboard with real sequences as they were shot. "It was a logical thing to do," he concludes.

The bottom line? In the hands of creative people, a postproduction tool can indeed become a handy production tool. "I know that all sorts of applications will emerge," agrees D-Vision's Radi. "When you put this kind of tool in peoples' hands, they use it in ways you never thought of. They absolutely reinvent the way technology is used."

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Hollywood Dials into Distance Networking

The ability to transmit images and audio via phone lines could change the way movies are made.

by Debra Kaufman

During the postproduction phase of *Apollo 13*, director Ron Howard wanted to review the process at home in Connecticut. However, the editing and other postproduction chores were taking place in Hollywood. A problem? Not with distance networking. Pacific Bell set up the fiber-optic connection between Hollywood's Todd AO/Glenn Glenn and Howard's East Coast home, hooking up with Southern New England Telephone via long-haul carrier AT&T.

Distance networking is perhaps the biggest buzz in the postproduction industry. In its loosest definition, it's the ability to send images and audio down the street, across the country, and around the world, connecting people and companies. Satellite transmission has been an established means of distance networking, especially for broadcast applications; new to the mix are phone companies offering fiber-optic networks and interactive capabilities. Some distance networking solutions are real-time, others are not. Some allow a degree of teleconferencing, so that far-flung users can not only look at the same images but confab about them.

The benefit of distance networking is that it allows people in geographically distant locations to collaborate creatively. It's faster than FedEx and less taxing than plane travel. It's convenient, it's flexible, it's digital. And, of course, it's got limitations. Film (or video) images boil down to a lot of digital data, and it's difficult to transmit all the data through a relatively narrow fiber-optic pipeline. Images have to be compressed to be transmitted, which results in images that are acceptable, for example, for an approval process but not for digital mastering. With current technological limitations, transmitting an uncompressed signal would cost an arm and a leg. And even the high-end compressed solutions aren't cheap.

High-end post facilities often invest in not one but several solutions for hooking up with clients, production companies and other post houses across the country. The eventual promise is that distance networking will be so ubiquitous and powerful as to create the "virtual post house," connecting artists and technicians around the world and dramatically expanding their ability to collaborate.

The current limitations of distance networking make it most accessible for material acquired in video and destined for television. With video's limited resolution and television's even more limited resolution capacity, there's less data to push down the restricted bandwidth pipeline, and anything that's lost in the process isn't so noticeable. Camp O.J., for example, is connected to the rest of the U.S. by a complex but tried-and-true network of Pacific Bell and Vyvx broadcast-level fiber-optic delivery systems. Through improved compression schemes and other strategies, network providers are now offering digital component-quality transmission. Image resolution will only improve.

What are the forces driving distance networking? In the macro-picture, global thinking — be it trade relations or the Internet — is the impetus behind the desire for global artistic collaboration. The concept of tele-commuting has been popularized; the possibility of tele-creating opens up some amazing vistas for filmmakers.

In the micro-view, other, more practical forces are driving the concept and reality of distance networking. First, satellite time is rapidly becoming saturated, making it a limited commodity. That fact has intersected with the recent interest among telephone companies in exploiting their fiber-optic networks to maximum benefit. The main focus has been interactive television, and several RBOCs (regional Bell operating companies) are involved in interactive television trials.

But other possibilities for using fiber-optic networks to send imagery over phone lines has not been lost on two of the more farseeing and pioneering phone companies. While we're all waiting on interactive TV (don't hold your breath), why not practice sending imagery over phone lines for more specialized, entertainment industry uses? In the process, these phone companies get a chance to become more familiar with and to the entertainment industry and, they hope, make phone delivery of images an accepted practice among the Hollywood filmmaking elite. An association with Hollywood's glitter also means contact prestige (and high profiles) for companies not otherwise known for their sexy products.

Such a strategy paid big dividends when Steven Spielberg was able to look at images of *Jurassic Park* dinosaurs being created by the San Rafael, CA-based Industrial Light & Magic while he was busy filming *Schindler's List* in Krakow, Poland. The innovative use of phone lines and satellite time became a concrete reality, in the form of a popular director and two popular films. The buzz was born.

But aside from a handful of anecdotes involving high-profile (and technophile) directors and big-budget films, has distance networking made much of an impact on the filmmaking community? The short answer is, not yet. The old saw that new technology is overstated in the short-term and understated in the long-term holds true here.

But by the time the buzz has died down, the technology may be well on its way to offering real-time, collaborative delivery of the kind of high-resolution imagery mandated by feature film production. Improved compression algorithms (allowing more data to be pushed

down that old bandwidth pipeline without loss of resolution), standardized encoders/decoders (allowing everyone to connect easily), and a culture that favors phone lines over FedEx will all arrive. When they do, the ways in which distance networking are actually used will be invented, a thousand times over, by the users themselves.

The possibilities are tantalizing. Whether it's viewing live video of far-flung locations from the comfort of your home office, confabbing about footage with several people in different locations, or hiring that hot editor in Paris to cut a film being shot in Kansas City, distance networking offers a new paradigm of film production.

In the meantime, for those interested in distance networking and how it's evolving, the arena to keep an eye on is commercial production and that field's high-end post facilities, where tight deadlines, an openness to new technology and an NTSC destination make distance networking a viable option.

The following are a list of the existing distance network providers and a description of their systems.

Pacific Bell's AVS Network

Pacific Bell debuted "Virtual Hollywood" at the 135th SMPTE meeting in 1993. Now, only two years later, every major motion picture studio in Hollywood has signed on to Pacific Bell's AVS (Advanced Video Service) distance network. Also part of the AVS network are over 35 Los Angeles and San Francisco Bay area postproduction houses. Kaleidoscope Films, for example, uses the AVS network to send approval cuts of trailers to and from other facilities and major motion picture studios such as Paramount Pictures.

For now, Pacific Bell's AVS network is limited to California. In the case of *Apollo 13,* for example, Pacific Bell had to make the arrangements with Southern New England Telephone: not every RBOC is as savvy as Pacific Bell to the possibilities of distance networking for the Hollywood filmmaking community.

The AVS network offers component digital quality with its AVSCD service (the quality level used by most of the post facilities). At NAB '95, Pacific Bell announced its intent to work with Dolby Laboratories to build enhanced Dolby audio into the product. Remote machine control was demonstrated at the International Teleproduction Society's meeting in July 1995.

Pacific Bell also has numerous other networking plans in development. Pacific Bell operations strategy manager Ernie Souza is chair of a Bell Core committee to develop procedures for link-ups between various regional telephone companies. The telco is also working towards providing a professional audio-only circuit over ISDN lines which will be compatible with multiple audio formats. In addition, Pacific Bell continues to work on MPEG-2 compression. And its Cinema of the Future, a means of digitally delivering movies to the theaters, is also under development.

Proof that the AVS network is achieving critical mass was apparent in Pacific Bell's decision to institute a quarterly customer forum, where AVS network users can describe new applications and discuss their needs. About 65 people attended the first meeting, held in Los Angeles. Kaleidoscope Films described producing a trailer where the producer could oversee sets, casting, and lighting remotely; some of its material, edited on the Avid, is going via AVS for client conferences. And what Pacific Bell heard from their customers came as no surprise.

"Their biggest need is to network nationally and internationally so they can work with their colleagues wherever they happen to be in the world," reports Charnee Smit, marketing manager for video products at Pacific Bell. "That's what they've charged us with. And we told them we're pedalling as fast as we can to make it easier."

Sprint/SGI's Drums Network

Drums allows simultaneous viewing and annotation of projects over long distances during creation and approval stages; online access to content and the Internet helps bring raw materials to the desktop. Unveiled at NAB '94

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with 12 network users, the Sprint/SGI Drums network is now up to about 60 users, including 20 who are beta-testing a new version that adds a more consistent interface and content. Beta-test customers include R/GA Digital Studios, Editel/New York, Lamb & Company, Rhythm & Hues, Grey Advertising, and J. Walter Thompson, among others.

SGI Virtual Studio marketing manager Mike Keeler says that the two major components network users want are desktop-to-desktop collaboration (with tools such as videoconferencing) and the ability to access content such as stock footage, stock audio, and high-res input and output services.

To that end, Sprint announced at NAB '95 the establishment of several new strategic relationships. Los Angeles stock footage company Energy Productions and Reuters Television will provide digitized footage for Drums users to browse, and the Eastman Kodak Company will enable access to its Kodak Picture Exchange through the Drums gateway. Sprint and Kodak announced their intention to create new image storage and distribution services that will allow businesses and individuals to share images over Sprint's fiber-optic network.

Sprint and R/GA Digital Studios, the bicoastal digital effects company that created the new Drums icons, announced their intent to work together to promote R/GA's Transparent Studio and Sprint's Drums service, facilitating collaboration and access to content and services. Viewpoint DataLabs International, a leading provider of 3-D computer models, plans to make its software available to Drums users through its World Wide Web site. And Electronic Data Systems is providing its Media Vault software, a store-and-forward repository for digital content, which will allow Drums users to search for content, peruse thumbnail images, and preview and purchase film clips from content providers online. Sprint has also initiated a relationship with Avid Technology, Inc. toward collaboration in product and business development, to integrate Avid nonlinear editing systems with the Drums network.

A companion service is Studio Live, an Internet online service provided to SGI customers, with a file transfer utility built-in for sending video and audio clips. Whereas Drums is a premium service, Studio Live provides basic online capabilities for anyone using SGI workstations.

EDnet (Entertainment Digital Network)

Since its March 1992 debut, the San Francisco-based EDnet has created a worldwide network of over 100 affiliates and 100 international associate network members. EDnet is now also a sales agent for Pacific Bell's AVS network, and Pacific Bell's plans for an ISDN audio link will also enhance EDnet's services.

In 1994, EDnet took off like wildfire, providing remote audio mix approvals and remote ADR for a very long and impressive list of feature films (including *Forrest Gump*, *The Lion King* and *Natural Born Killers*) and music recordings (including the Frank Sinatra *Duets* album).

EDnet is also the U.S. distributor for the International VideoFax, an Australian product. The ISDN-based International VideoFax costs $16,000 for installation (followed by a per-use software fee) but hooks up EDnet to the VideoFax network, which includes London, Paris, Australia, and various locales in the Far East. A 30-second commercial takes 30 minutes to transmit in S-VHS quality.

Tom Kobayashi, president of EDnet, reports that the company's next product will be remote delivery of video dailies and a high-speed network for audio/video file transfers between digital workstations.

Click 3X

This New York-based special effects/graphics house introduced ClickLink, developed in consultation with Avid Technology, in January 1995. ClickLink uses ISDN phone lines (multiplexed up to four lines) to send video and audio files; a 30-second spot can be transfered in about 17 minutes, at Avid's broadcast-quality AVR-26 resolution. The ClickLink network includes Click 3X's West Coast facility (on the premises of Colossal Pictures in San Francisco), Century III in Orlando, FL, The Mill in London, and Crest Films in Los Angeles. The plan is to establish a network of 20 ClickLink sites in the next six months.

"Our goal is a large number of installations because it'll make it easier for everyone to communicate with one another," says Click 3X president Phil Price. "Our goal isn't to get into being a service bureau, it's to be a business network."

Click 3X has also established its own page on the World Wide Web. Though Price says he will use ClickLink to send large files, he will sometimes transfer smaller files, compressed files, or QuickTime movies through the Internet connection.

emotion

Based in Palo Alto, emotion added a Windows version to its CreativePartner networking solution that is compatible with the Macintosh version it debuted in November 1994. Also available is CreativeNote, a software technology that allows viewers to review and annotate video content, stepping through MPEG and JPEG-encoded movies on a frame-by-frame basis. With both packages, a CreativePartner user is able not only to distribute video but play it backwards or forwards, at regular speed or in slow motion, and pause on any frame to write an annotation on a post-it, record an audio note, or actually draw on the image. CreativePartner can run on modem, ISDN, T-1 or T-3 lines.

"And if the transmission is interrupted, you don't have to re-send the entire project — it picks up where it left off," reports vice president of marketing Bernard Harguindeguy.

A worldwide license to CreativePartner was recently sold to True North Communications (the successor to Foote, Cone & Belding). Harguindeguy notes that CreativePartner has shipped primarily to ad agencies, postproduction houses, movie studios, and cable/broadcast stations.

Mad River Technologies

In January of 1993, Santa Monica commercial offline house Mad River Post created VideoFax as a way to send rough cuts of commercials to Foote, Cone & Belding in Santa Ana. Mad River Technologies was born, in April 1994, to rent the turnkey, user-friendly VideoFax system. The resulting subscription network now has about 35 users in sites that include Los Angeles, San Francisco, New York, Chicago, Detroit, Dallas, and Portland. Wieden & Kennedy recently signed on as the flagship company, which means that Mad River Technologies will research and develop specialized applications and video transmission technology for them. A May 1995 upgrade added

near-VHS image quality video and audio to the ISDN-based service. Head of marketing & sales Jeffrey Nagel reports that plans are underway to bundle ISDN lines to create a wider bandwidth for faster transmission speed.

Vyvx First Video Affiliates

Last but not least is the Oklahoma City company that provides a nationwide fiber network of 11,000 physical miles plus additional leased miles. The First Video affiliate program is a network of Vyvx-linked facilities in cities across the U.S. The affiliate program includes 45 users, with four to five new cities targeted every year. President Del Bothof expects the network to grow to 60 over the next year. He notes that though he doesn't want to have much competition in major markets, one First Video affiliate may have a strength that complements another's weakness.

ImageNet, the company's CCIR 601 (component digital) transmission service, is awaiting a standardization of codecs, so that Vyvx First Video affiliates can successfully interrelate. Later on in the year, Vyvx will also introduce AtlanticVision, a joint venture with British Telecom and Teleglobe Canada to provide point-to-point delivery of occasional-use TV transmission services between the U.S. and the U.K.

Bothof reports that "business is very, very strong," mainly because news organizations are using Vyvx more, and also notes that the future only looks better for distance networking solutions like Vyvx .

"I think it will only increase as more and more interactivity takes place," he says. "That puts the First Video affiliates in a nice spot, because we have a complete two-way system. Satellite is limited because it's point-to-multi-point and it's primarily one-way. As our world gets more interactive in the networking sense, then obviously fiber becomes a stronger component of that."

A Final Note

Despite the limitations, the desire to connect and collaborate across the map is driving the creation of even more distance-networking solutions. Though filmmakers' current attraction to the existing technology may be limited, chances are good that distance networking will take its place as part of the general digital evolution in Hollywood.

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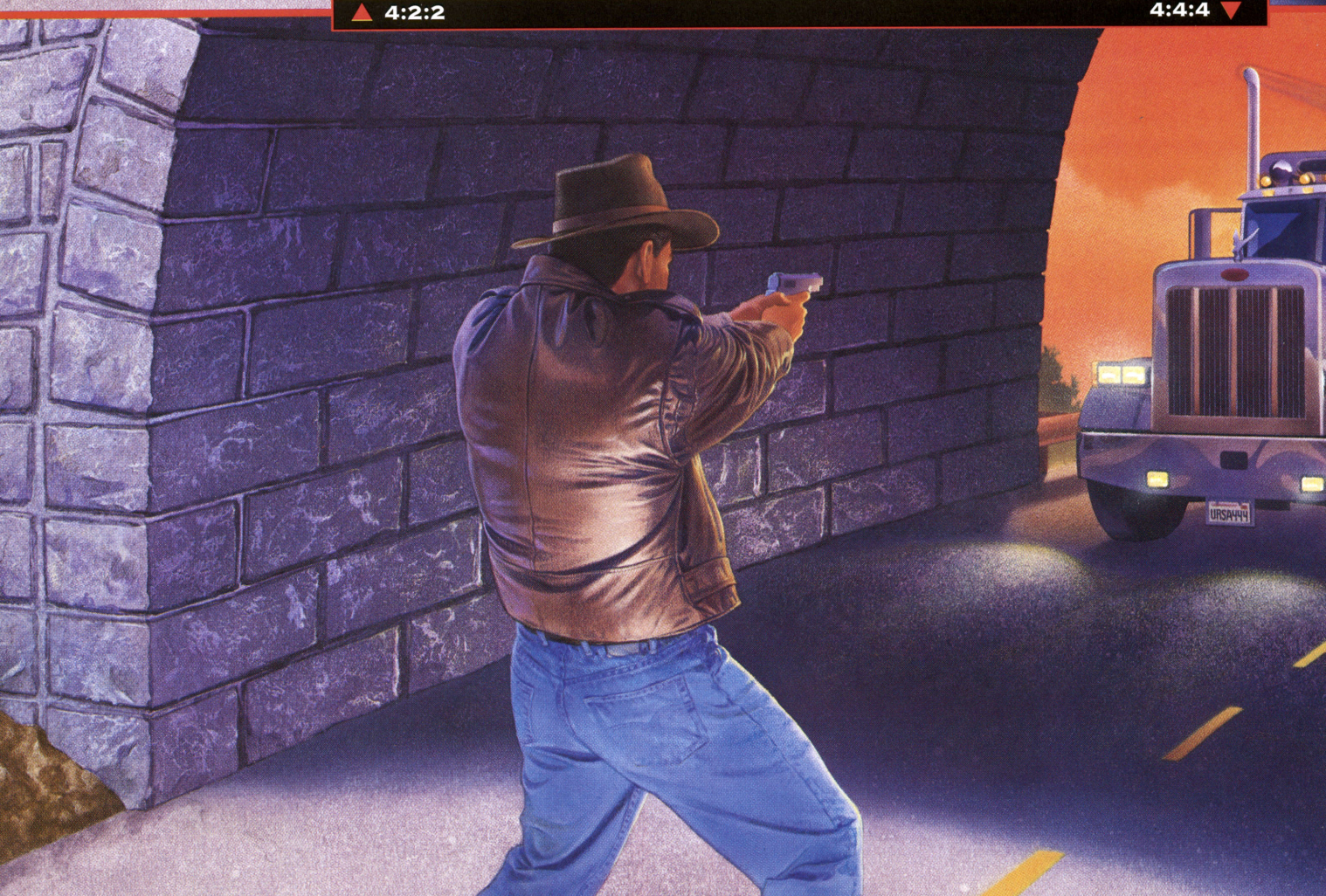

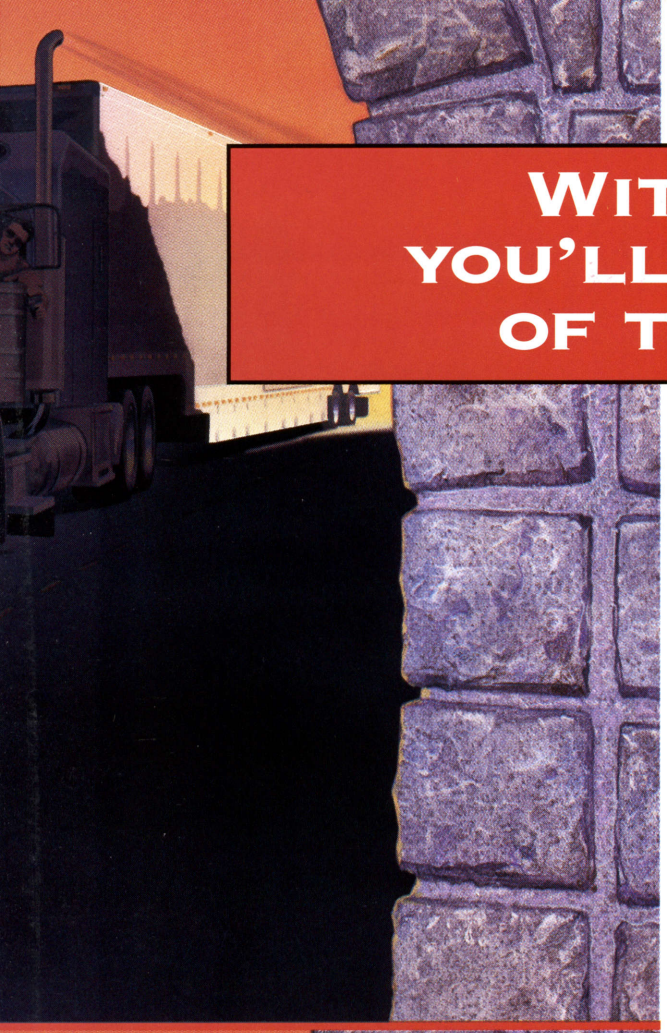

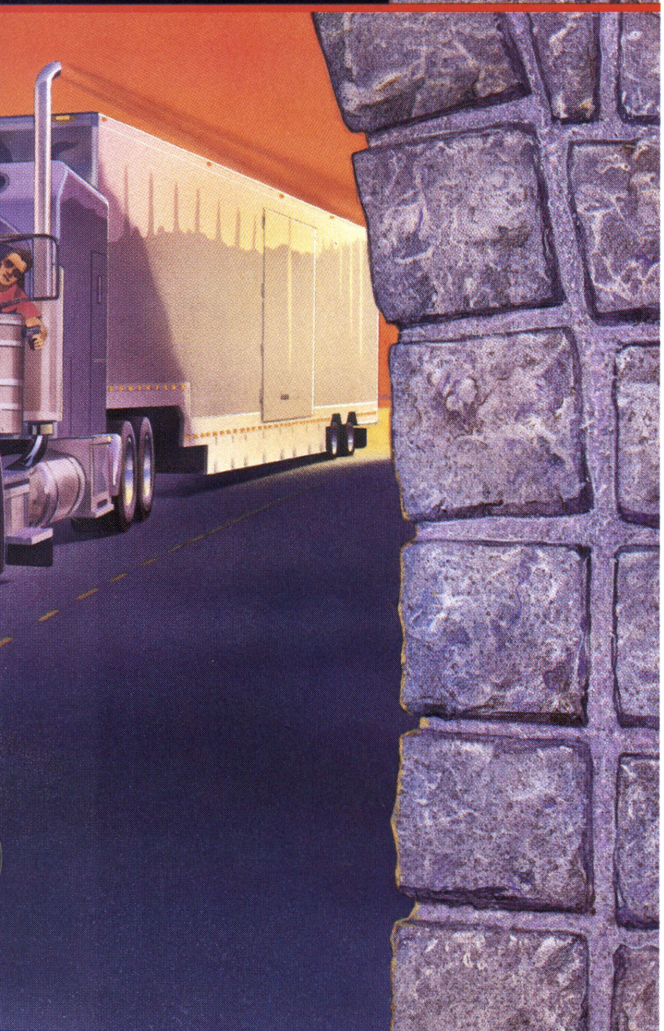

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Between "Rock" and a Hard Place

In his latest film, *Clockers*, director Spike Lee teams with first-time feature cinematographer Malik Sayeed to explore crack cocaine's devastating impact on the inner city.

by Stephen Pizzello

Having infiltrated America's major cities, crack cocaine (or "rock") has spawned a complex and dysfunctional culture with its own laws, language and legacy. In the jargon of this limbo world, a "clocker" is a low-level runner (so named because the runner is on the street "around the clock") who serves as a conduit between dealers and addicts. Eager to make instant profits on the street, clockers spend their days preparing and distributing a product that exerts a viselike grip on its obsessive users. But the quick cash often exacts a heavy price of its own; in any criminal enterprise, trust and loyalty are strong-armed aside by paranoia. Detailing the downward spiral of a clocker whose time is running out, director Spike Lee's new film provides a stark, unflinching look at crack's deadly impact on a fictional New York neighborhood.

Sayeed (center, in white T-shirt) and Lee (at right, with viewfinder) set up a shot near the Gowanus Housing Project in Brooklyn. Says the director, "I like be on location, especially in New York City. There's an energy and vibrancy here that you just can't duplicate in the studio."

The film's somber tone is established during its startling title sequence, which presents a grisly series of stills that re-create actual autopsy photographs of drug-related murder victims. In preparing the sequence, Lee spent two weeks at the New York crime scene unit headquarters, where the lieutenant in charge allowed him to inspect what the officers refer to, with typical gallows humor, as the "family album." The pictures he selected were later restaged with actors and photographed by his brother, David Lee. Recalls the director, "I saw the most gruesome autopsy photos you could imagine. Of course, it would have been in bad taste to use the actual photos in the film, so we duplicated them. We did this for effect; we wanted the viewers to know, before they even settled into their seats, that our film was about serious business. This movie is the exact opposite of the big-budget action films you see, which are full of cartoony killings. We weren't going to treat life cheaply in *Clockers*, because when you take a life, it's forever. There are too many kids being killed on the streets of this country, and it's no joke to me."

Given the opportunity to make such a statement to a mass audience, Lee has crafted a harrowing tale that is both visually inventive and remarkably realistic. The director's desire for authenticity was so great that he even recruited actual crack addicts for a montage sequence in which fictional dealers are shown peddling their wares. "We always had a six a.m. call time, and when we got to the location we'd see all of these crackheads scurrying around," Lee recounts. "Not everyone in the projects is a crackhead, but that element is a part of the environment, and I wanted to think of a way to incorporate them into the movie. One day, it was raining. We could have gone to a cover set, but instead I told my A.D., Mike Ellis, to round up some crackheads so we could work them into a scene. I think it was an effective tactic."

Adapted for the screen by screenwriter/novelist Richard Price from his own book, *Clockers* was originally slated to be directed by Martin Scorsese, with Robert De Niro starring. The story certainly presents a Scorsesean milieu, featuring betrayals, double-dealings, and a youthful protagonist in search of redemption. De Niro was to have played Rocco Klein, a veteran homicide detective who believes that a teenaged clocker named Strike is responsible for the shooting death of a convenience-store clerk — despite the fact that Strike's straightlaced older brother,

Photos by David Lee and Phillip Caruso, courtesy of Universal City Studios

Victor, has confessed to the crime. As the detective pressures Strike to confess to the murder, the clocker's relationship with his dealer sours inexorably, leaving him no place to turn.

Before the film came to fruition, Scorsese and De Niro opted to pursue a different project (*Casino*), sending Universal Pictures on a search for another director for *Clockers*. Under Scorsese's auspices as executive producer, the studio offered the film to Lee, who felt the project was a perfect fit with his own sensibilities, concerns and aesthetics. "I read the novel and looked at the various scripts that Marty and Richard Price had worked on," says Lee. "But as I did, I started getting ideas about how to add my own vision while still being true to the book. I met with Marty, Richard and De Niro, and they all seemed to be in line with what I wanted to do, so I went ahead and made the movie."

Lee worked out a new draft of the script with Price, casting Harvey Keitel, a veteran of four Scorsese films, in the role of Rocco Klein. The players also include a pair of Lee mainstays: John Turturro (*Do the Right Thing, Jungle Fever, Mo' Better Blues*) as Klein's partner, Larry Mazilli, and Delroy Lindo (*Malcolm X, Crooklyn*) as crack dealer Rodney Little, whose neighborhood grocery store serves as a front for his drug-running operation. The pivotal role of Strike went to new face Mekhi Phifer; Isaiah Washington essayed the role of Strike's upstanding brother, Victor; and another first-time actor, Tom Byrd, portrayed Errol, Rodney's drug-addled henchman.

Phifer and Byrd weren't the only newcomers to benefit from Lee's patronage. In a rare move that bucked Hollywood's traditional system of personnel advancement, which often occurs at a glacial pace, Lee decided to give a former member of his electrical crew, 26-year-old Malik Sayeed, the promotion of a lifetime to director of photography. A 1990 graduate of Howard University, Sayeed earned his degree in film studies and later attended the Maine Photographic Institute, where he benefitted from courses taught by cinematographers Ralf Bode, ASC, Rob Draper and Billy Williams, BSC. "A major part of my education was reading any book I could find on motion picture photography," he says. "Reading was my foundation; it really helped me to understand the actual process during my practical training."

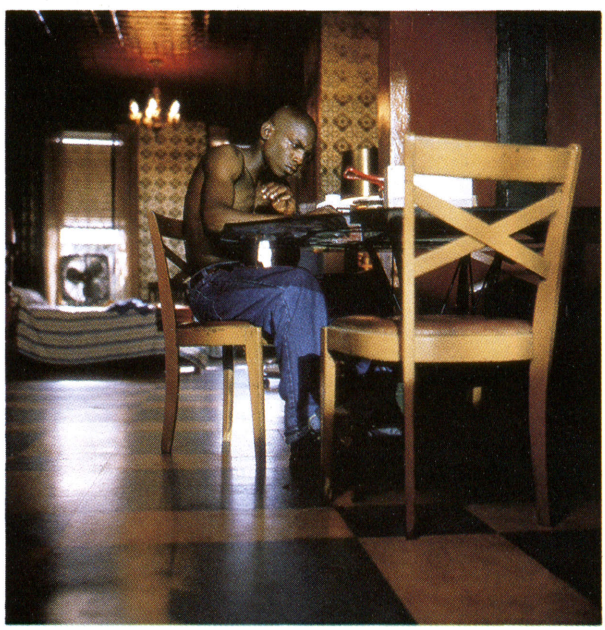
Having worked his way into I.A.T.S.E. as an electrician in college, he was later able to gain a position on the electrical crew for Lee's epic biopic *Malcolm X*. Of his entry into the film business, Sayeed relates, "A friend of mine who was an electrical intern introduced me to the gaffer on

A police detective (Michael Imperioli) attempts to "strike a deal" with Strike (Mekhi Phifer). Sayeed's lighting scheme for this sequence included a combination of sodium-vapor and mercury-vapor lights. The mercury-vapor fixtures provided the scene's greenish hue.

Alone in his apartment, Strike prepares a batch of crack cocaine. Throughout the film, Sayeed used 4Ks and 18Ks to simulate hard city sunlight coming through the windows.

Malcolm X, Charlie Houston, and I just kept hanging around until one day they finally needed some extra people. That film was shot in New York in the dead of winter, and it was *seriously* cold outside. But I was just thankful for the chance to watch Ernest Dickerson [ASC] work. When I went home at the end of the day, I spent all of my free time reading up on films, watching videotapes and making notes."

Sayeed's studious attitude paid off with a promotion to best boy on Lee's subsequent film, *Crooklyn*. Prior to that assignment, he had gaffed a few smaller projects for *Crooklyn* cinematographer Arthur Jafa (a.k.a. A.J.), whose credits include *Daughters of the Dust*. "I had also bought a pair of cameras, a Bolex and an Arri 2C, and was shooting anything I could," says Sayeed. "After I worked on a docudrama with A.J. called *Seven Songs for Malcolm X*, we became really tight. He's definitely influenced my style. We both try to express our creative energies through cinematography, in the same way a musician uses his instrument. I get visual ideas while listening to music, but not in a physical sense; it's more an emotional tone. I especially admire Thelonious Monk. With Monk, it's all about timing, and where to place the emphasis. He broke all the rules. Monk took what he learned and built something else; he never said, 'I can't do this.' I applied that attitude to *Clockers*."



In the days before his big break, Sayeed compiled an impressive reel of work which included his collaborations with top music video director Harold "Hype" Williams. After watching the young cameraman's reel, Lee invited Sayeed to shoot a series of television commercials with him. The director soon decided that Sayeed had what it took to tackle a full-length feature.

Lee recounts, "When *Clockers* came around, I talked to a lot of cinematographers, including Janusz Kaminski, who was already committed to another project. Finally, I said, 'Wait a minute. You've got to cultivate your own.' I knew Malik might not get another chance for a long time, and I didn't want him to be in video hell forever, so I rolled the dice and gave him a shot."

The director does admit that he is still adjusting to life without Dickerson, who served as his right-hand man on five pictures — all visual stunners. "When I was working with Ernest, if I got lax in saying where the camera would go while we were setting up a shot, it never mattered, because he always put the camera exactly where it was supposed to be," says Lee. "Now that Ernest has gone off to be a director, I can't use him as a crutch anymore. Malik is more inexperienced, so he was thinking primarily about the lighting on this film. I had to step up and do what a director is supposed to do — set up the camera and design the shots. I have to say that I was really fortunate to have done a lot of films with Ernest, because I really benefitted from his visual sense."

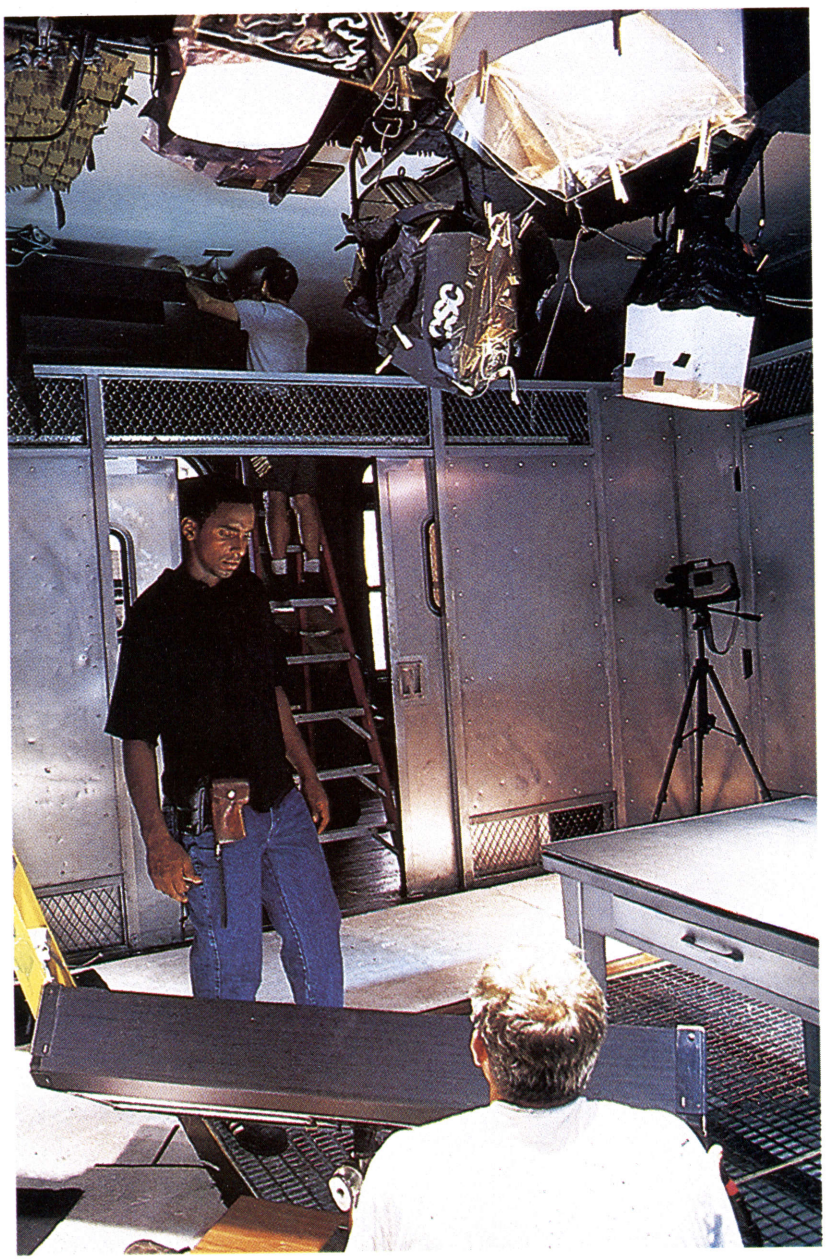
Asked to assess the talents of his new cameraman, Lee offers, "What I like most about Malik's style is that it's uncontaminated. Some cameramen get bogged down in thinking about what you can and can't do. To those guys, it's just a job. I want to work with people who think like artists, not just technicians. That's not to say that Malik doesn't know his stuff; he's really on top of the technology. He knows about all the new lights and equipment that's out, and he wants to try new and interesting things."

This sense of creative chutzpah is certainly apparent in *Clockers*, which offers a cornucopia of unusual ideas and techniques. The most startling was Sayeed's gambit of shooting a significant portion of the film on Kodak's 5239 film stock, an Ektachrome reversal film that isn't even mass-produced. The stock, which is rated at 160 ASA, was once used in a 16mm incarnation during the days before news reporters shot exclusively on video. Lee concedes that he had "never even heard of the stuff" before Sayeed brought it to his attention. According to the cinematographer, the only reason Kodak still makes the stock is that NASA and the U.S. Air Force continue to use it. "When the *Challenger* space shuttle exploded, NASA had a lot of video cameras on board, along with one film camera, and the only camera that survived was the film camera," he says. "So NASA started putting more and more film cameras on the shuttles. They used this Ektachrome stock because their labs had been set up to handle it for years. When we first started shooting *Clockers*, we discovered that 5239 doesn't even have edge numbers on it; we had to have Kodak make up a special batch with numbers for us. But once we got rolling, everything

went smoothly. We processed it in a negative bath, and then printed from there on standard Eastman print stock."

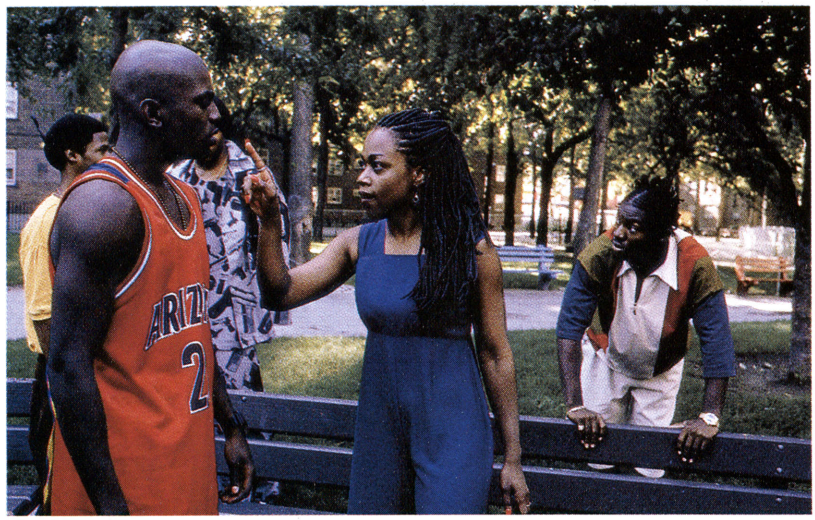
Sayeed had tested a wide variety of stocks during eight weeks of preproduction, searching for one that would reflect his own vision of life in the projects of New York. He even sought the advice of renowned film stock alchemist Robert Richardson, ASC, who had read a treatment of the film while Scorsese was still attached. "He was very, very helpful," Sayeed says with admiration. "Because he had read an earlier version of the story, he had a lot of opinions. He stayed on the phone with me for hours; I was really grateful that he took the time to talk to me."

For an interrogation scene involving a young boy (Pee Wee Love) and his mother (Regina Taylor), Sayeed sought inspiration from Robert Richardson's approach to similar scenes in the Oliver Stone film* JFK. *A combination of ceiling-mounted HMIs and floor-mounted Kinoflos, in conjunction with Kodak's unusual 5239 film stock and a reflective board on the table, helped to create a hot, glowing aura around the actors.



In discussing the look of the film, Lee and Sayeed referenced a few other films, such as the raw, urban cop dramas *Bullitt* and *The French Connection*. But Sayeed testifies that the visual style of *Clockers* was more influenced by still photography. The production designer, Andrew McAlpine, had introduced the filmmakers to a book called *Juke Joint*, by Bernie Imes, which presents photographic essays on rural areas in Mississippi. "Imes shot photos of little clubs that are barely standing," says Sayeed. "The designs on the walls of these places are very interesting. We used that look at Rodney's store and in Strike's apartment. You can find the same visual style in Brooklyn, Senegal and the Caribbean — colors like blue-green against black and yellow, in a variety of different patterns. Some other inspirations for me were Bruce Davidson's book *Subway*, and two books of photos that Leni Riefenstahl shot in Africa. Her politics are a matter of debate, but her aesthetics are incredible."

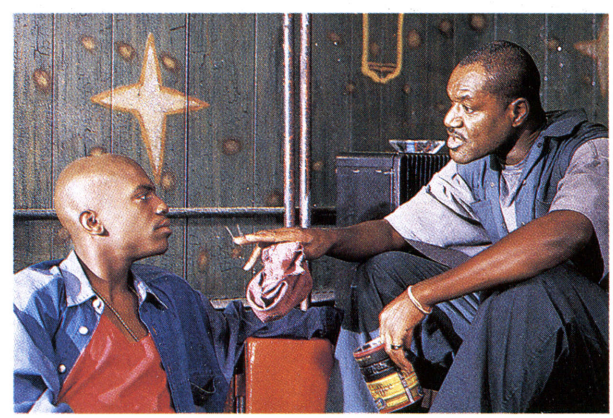
Both Lee and Sayeed felt that a unique look was needed to convey a true sense of daily life in a New York housing project. Working on location at the Gowanus Housing Project in Brooklyn (rechristened as the



Right: ***A neighborhood mother warns Strike to stay away from her son.***
Below right: ***Drug dealer Rodney Little (Delroy Lindo) lectures Strike on the Machiavellian ways of the crack business. The patterns on the wall of Rodney's grocery store were copied from a style that can be found in Brooklyn, rural Mississippi, Senegal and the Caribbean.***

Nelson Mandela Projects in the film) they agreed that the gritty look they sought would be difficult to achieve using today's clean, sharp film stocks, and decided that it was worth the risk to shoot scenes in the projects on 5239. Lee points out that while a few sequences in Steven Soderbergh's recent film *The Underneath* were shot with 5239 and cross-processed, *Clockers* represents the most significant use of this technique in recent memory; the director estimates that approximately three-quarters of the movie was shot on the reversal stock. He admits, however, that the decision gave him a few sleepless nights. "At one point, some experts from Kodak showed up on the set and said, 'We don't know if this negative's going to last.' There was some question about the fixer process, and they wanted us to stop shooting with it. We went ahead anyway, but I did a lot of praying."

The potential problem with the fixing process was solved by Joe Violante, Vice President of Producer Services at Technicolor New York. Violante, a 25-year veteran who had done the cross-processing on Soderbergh's film, was eager to help Sayeed and Lee with their project. "Almost five years ago, Technicolor New York began to experiment with cross-processing the reversal films in a negative bath," he says. "When we first started doing this we were just using stills, and we were working mainly with commercial cinematographers. At first, we didn't have such great success, because the process was cooking the reversal. Slowly but surely, we worked up to 400-, 1,000- and 5,000-foot rolls. Through trial and error, I discovered that I could create a stabilized product by re-fixing the negative. When *Clockers* came along, we felt ready to jump right into it, but we were still very careful. Malik and I personally supervised every frame, and we isolated this film from the others Technicolor was handling at the time.



"As far as the results are concerned, I love the way this film looks," Violante concludes. "I think it's very unique."

Kodak Production Account Executive Mike Brown, who handled the *Clockers* account, adds his own note of caution to anyone who might want to try the cross-processing technique. "Anyone attempting to use such a process on a motion picture should perform extensive testing with the lab, and should also consult Kodak," he says. "The special films used on *Clockers* had to be special-ordered well in advance. Kodak still considers cross-processing to be a highly unconventional approach, so it's better to be safe than sorry."

Looking at the experiment from a historical point of view, Sayeed points out, "Filmmakers were trying this kind of thing all the time in the Twenties, Thirties and Forties, because nothing was set in stone yet about how things should be done. Everybody was using different processes. Still, I did run up against a wall when I first suggested this technique. One big lab, whose name I won't mention, told me, 'No way, never, we can't believe you're going to do this.' But Technicolor New York and Joe V. went the extra mile for me. Some people still think I'm crazy for doing it, but I felt it was the best approach for the story. 5239 was the one stock that was best able to convey the atmosphere of the locations we were using. The standard Eastman negative didn't have the emotional weight that this technique gave us. I saw the film process itself as a metaphor for what exists in the ghetto; you have this really messed-up environment, but there's still a beautiful culture within that environment. Likewise, the 5239 has a completely raw grain structure, but it also has intense, vivid colors. It really records red and purple, so we took advantage of that. In one scene near the end of the film, for example, Spike had practically everyone in the frame dressed in red."

Sayeed admits that the

stock presented some photographic challenges. With little under- or overexposure latitude, the cinematographer had to perform extensive tests to zero in on the relatively narrow exposure range. "There were a couple of scary moments, but in general we had no problems," he maintains. "The most difficult situations were strong sunlight and shade. Those are tough situations even if you're shooting normally, but our strategy really made it extreme. I was going for a very naturalistic level of fill light, because I don't like to use fill to the point where it looks like fill. It also helped to try to shoot in confined areas; I didn't want to confine the story, but things got tougher when we had really big shots. I did a lot of exposure pulls on this film, and there were a few times when I made little mistakes. For example, there's a scene in which the two detectives go to arrest Rodney at his store. The shot starts outside, where it's really bright, and then goes into the dark interior. We definitely had to do an exposure pull, but I think it was a little extreme. The street was very hot, but I think I came down a bit too much. This stock did lend itself to exposure pulls, though, because the contrast is so extreme that you can go a little further without seeing a noticeable shift; most of them are invisible."

The filmmakers applied a variety of other stocks as well, depending upon the requirements of a scene. In addition to the 39, Sayeed tapped 5298 for night sequences, 5248 for scenes in the police precinct, and 93 for select shots. He also cross-processed 7251, a 16mm Ektachrome reversal film, for a surreal flashback in which Rodney tells Strike about the first time he killed a man.

To further heighten that sequence's queasy tension, Lee filmed several shots with an anamorphic lens. Although *Clockers* was shot in 1.85 to exploit New York's vertical skylines, Lee felt that the subtle use of anamorphic would heighten the "shock value" of certain scenes. He had previously employed this strategy for a 20-minute uncorrected anamorphic sequence in *Crooklyn,* with highly controversial results; the squeezed images prompted Universal to prepare printed disclaimers at theaters exhibiting the film. Still determined to defend his choice, Lee says, "People had problems with the anamorphic sequence in *Crooklyn,* but in that film I was trying to show the difference between life in the city and life in the suburbs. I wanted to present this distorted suburban world through the eyes of the little girl, Troy, who had grown up in a completely different environment. If I had to do it again, I'd still do it the same way.

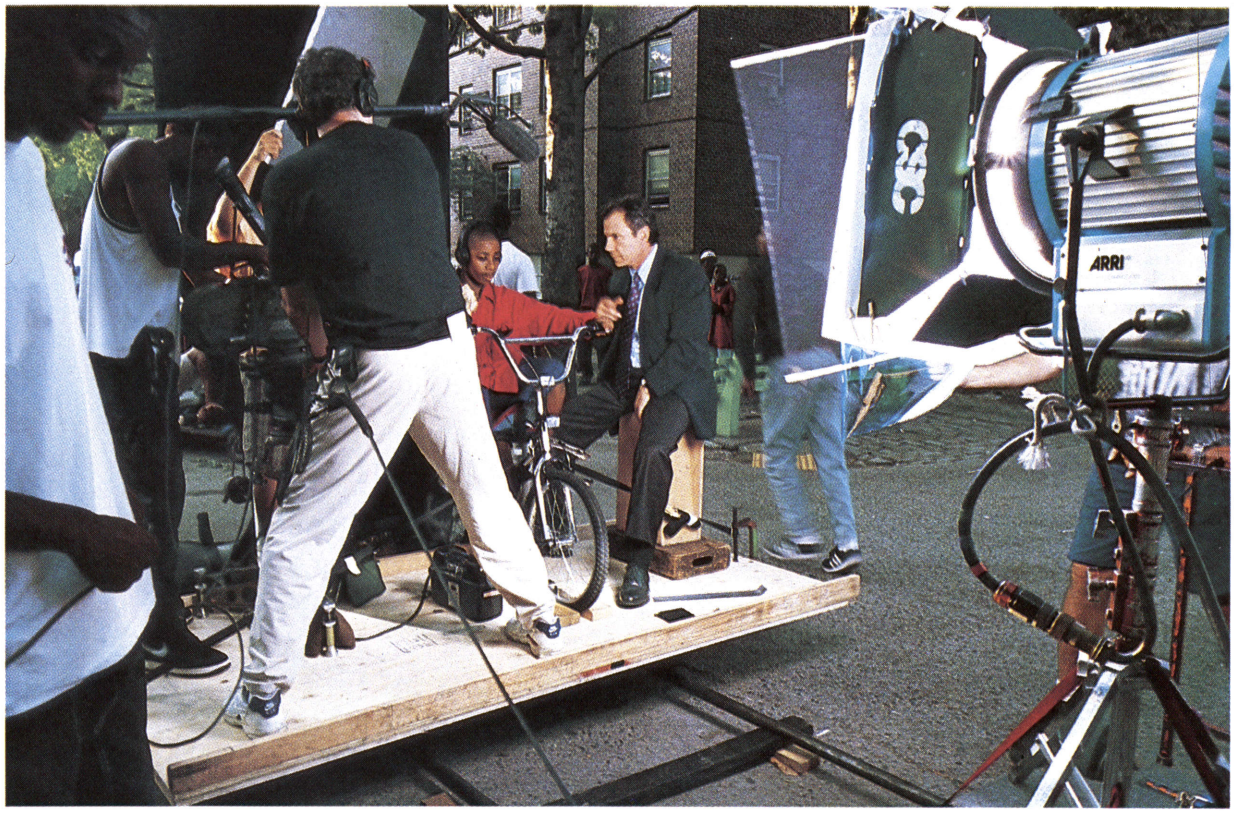
"On *Clockers,* we just used anamorphic for very specific shots. For the Rodney flashback, we used Clairmont's Swing-and-Tilt lenses in combination with anamorphic, which gave us an unusual perspective. I didn't want to do the whole film in anamorphic, because I don't like going through the correction process."

Sayeed's use of moving streaks of light added to the strange quality of this flashback. "I had two of the electrics hold lights and pan them like searchlights across the actors' faces," he reveals. "Were trying to achieve a voyeuristic point of view. We wanted to show real-life consequences in a very graphic way."

The film's other flashback sequences were shot in equally interesting ways. For scenes detailing Victor's past, Sayeed used an Ektachrome still photography reversal film, 5017 (ASA 64), which Kodak spliced into 1000-foot rolls that would run through an Arri 535. "The pitch worked fine in the Arri camera," says Sayeed. "I knew I could get the look I wanted, but it was a matter of whether the lab would be willing to cross-process the film. We used the Swing-and-Tilt lenses on some of the other flashbacks as well, such as one in which Harvey Keitel appears in another character's flashback."

According to Lee, the idea of physically placing Keitel's character in a small boy's memory of a shooting incident was culled from the classic film *The Boston Strangler,* in which a police investigator revisits the past with serial killer Albert De Salvo (Tony Curtis). "Martin Scorsese is one

For this interior sequence in a church, Sayeed borrowed a lighting trick used by cinematographer Vilmos Zsigmond, ASC on the film* The Bonfire of the Vanities. *After floating several helium balloons on ultra-thin monofilament lines (which are invisible to the camera), Sayeed bounced 4Ks and Xenons off the balloons' white vinyl sidings. This technique provided a good base ambience for the scene.



To create a surrealistic flashback scene in which Detective Klein (Harvey Keitel) floats along behind a boy's bicycle, the filmmakers placed the camera and the actors on a plywood sled. Mounted on lengths of black pipe, the sled was pushed past the location background to create the otherworldly effect seen in the finished frame.

of the greatest film buffs ever, but after he saw that sequence he got all excited and asked me, 'How did you think of that, Spike?!!'" Lee recalls with a guffaw. "I said, 'Marty, c'mon, it's from *The Boston Strangler.*' I was kinda surprised that one slipped by him!"

Lee further enhanced this sequence by employing a trick he has used to great effect in previous films: placing the camera and actors on a moving dolly to create a strange, otherworldly feeling of movement. In one particularly eye-catching shot during the boy's flashback montage, Keitel seems to float along in mid-air as the boy rides his bike. Sayeed explains, "To do that shot, and others like it, we used a plywood sled built by the key grip, Bobby Andres. It's a platform setup made out of Speedrail, plywood, 20-foot lengths of black pipe and some wheels. You run two pieces of pipe, which connect together with a few twists of an Allen wrench. The pipes are on top of wooden planks, and the sled goes on top of the pipes. It's very, very smooth, and you can make it run as far as you want by adding more pipe. You can even put another dolly on top of it; it's big enough to handle two Pee-Wees. And if you want the platform to be bigger, you just add planks. For the bike scene, we mounted the bike and lights on top of it and put the camera on sticks."

Commenting on his frequent use of such dolly shots, which can be also seen in *Mo' Better Blues, Jungle Fever* and *Malcolm X*, Lee states, "It's just a different way of having characters move. I think the best application of this technique prior to *Clockers* occurs in *Malcolm X*, during the scene in which Malcolm is on his way to the Audubon Ballroom. I did research and found out that Malcolm seemed to know he was going to be assassinated that day. The dolly technique really fit in with the mood of that scene; it created a weird sense of disorientation."

Lee and his team used a variety of methods to add movement to other scenes. A Steadicam, operated by John Corso, was used several times to follow Strike's movements, and the film is bookended by dramatic Louma Crane shots — an establishing overview of the convenience store, and a climactic shot of a slain clocker. For an early sequence that tracks the movements of the clockers on their daily routine, the filmmakers covered the action with long lenses, in a shaky style that resembles police surveillance. "We shot that scene with three cam-

eras," notes Sayeed. "We positioned ourselves as outsiders peeping in. To get the look we wanted, we did a lot of rack-focusing, hand-zooming and swish-panning."

The lively camerawork in Lee's films is not without a philosophical basis. Practical concerns always come into play, but the director maintains that modern times call for modern methods. "I want vibrant energy, movement and life in my films," he explains. "Shooting any other way, for me, is too much like television. It costs $7.50 to see a movie today, plus extra for parking, popcorn and soda. If you don't give the audience something interesting to watch, they're going to stay right on that sofa at home, where they have 150 channels to choose from."

The advantages of this forward-thinking stance are evident throughout *Clockers*, even during exchanges of dialogue. Rather than simply ping-ponging between talking heads, Lee often incorporates movement into what would otherwise be standard setups. A good example from *Clockers* is a conversation between Klein and Strike, which takes place on a pancake-shaped concrete platform in a neighborhood park. As Klein tightens the screws on Strike, trying to coerce a confession, the camera revolves around them, capturing the essence of their cat-and-mouse relationship. "As soon as I saw that big pancake, I pulled out the circular dolly tracks," Lee notes with a chuckle.

The director's fondness for dialogue led him to shoot most of the film with two cameras running simultaneously — the Arri 535 and a Moviecam Compact. "It can be a drag shooting two people talking, and a lot of times actors give their best performances when they're reading their lines offscreen," he says. "Actors love it when you use two cameras, because they don't have to wait for the turnaround."

Sayeed agrees that the

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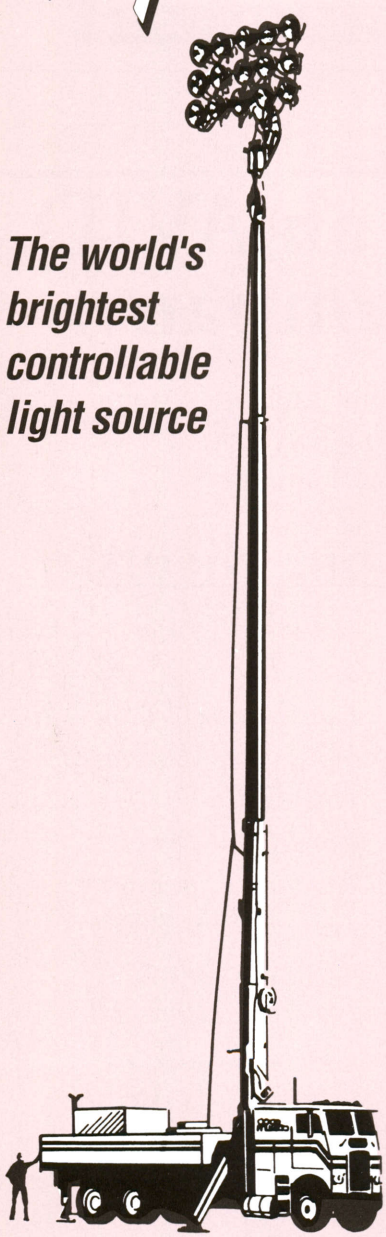
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two-camera setup preserves the spontaneity of performances, but he notes that this technique does come with a price. "The cameras are usually pointed almost directly at each other, so the optimum light placement is always in the other camera's shot," he points out. "It's a major challenge to light both angles effectively."

Although Lee has been faithful to Arri since his student days at New York University, Sayeed was interested in testing out the Moviecam unit. "Spike has used Arris since his earliest film, *Joe's Bed-Stuy Barbershop*, and he's got a good relationship with the company," Sayeed notes. "That was fine with me, because the Arri 535 is an excellent camera. But I also wanted to try the Moviecam, because it's lightweight and very versatile. I knew we were going to be doing some handheld in this movie, and I thought the Moviecam would be easier on the operator, Gary McCloud. It's the camera of choice for Steadicam operators. It's also versatile in terms of where you can put the magazine; you can configure it so it's much smaller than the 535.

"You can also do speed changes with the Moviecam, and we did one for the scene near the end of the film in which Strike is trying to avoid a confrontation with Errol, Rodney's henchman. We shot Mekhi Phifer on our sled setup in slow-motion as he walked along in the park, and we switched to real-time after he spotted Errol and tried to hide by a fence. It was subtle, but it looks pretty good. We also used a speed change for the flashback where Victor is working at a burger joint."

Except for a few brief sequences, Sayeed kept his lenses unfiltered throughout the shoot. "Most of the film was shot with Zeiss Superspeeds, mainly primes. We had an Angenieux 25-250, but we didn't use it very much. We also used 300, 400 and 600mm Nikkor lenses. Our standard lens was a Zeiss 25mm prime. I like being at 35 for normal shots, but Spike prefers to go a little wider at 25. Another lens I like is the 65. For slightly wider close-ups we used the 65 or an 85, and for extreme close-ups we used a 135."

One particularly eye-catching shot was executed with the help of a Zeiss macro lens. As detective Klein grills Strike in an interrogation room at the police precinct, the filmmakers cut to a giant closeup of Keitel's eyeball, which engulfs Strike's reflection. "The thing about the macro lens is that once you get in really tight, it stops down automatically, because there's a macro exposure compensation," Sayeed notes. "You really have to pump in the light, so it was blazing in that small room. The lights were on stands that were placed outside the curvature of the reflection in Harvey's eye, which became almost like a fisheye lens; it took in almost everything in the room."

During the film's other interrogation sequences, Sayeed and Lee paid homage to Robert Richardson by emulating the hot, haloed look he pioneered in the Oliver Stone film *JFK*. To create the "Richardson aura" around the actors, Sayeed loaded up the ceiling of the interrogation room with HMIs, supplementing the look with Kinoflos placed on the floor. He also added a Fogal net to the lens for a touch of filtration. "It was unbelievably hot in there; everyone was sweating," he recalls. "It doesn't look that hot on film, because of all the blue-grey metal in the room, which lent everything a cool feel. But the heat was so intense that Harvey's hair started smoking! I had told the makeup department not to put any grease in his hair, but they did, and his head had curls of smoke coming off it. I wasn't trying to burn anybody, but I thought the look was appropriate for those scenes. We were shooting with the 5239, and it really got the feel I was after. We bounced the lights off some boards I placed on the interrogation table. I was getting so much ambient

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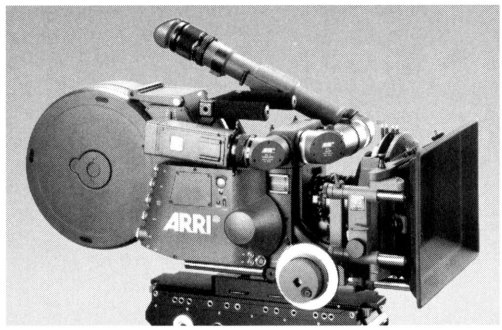

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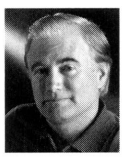

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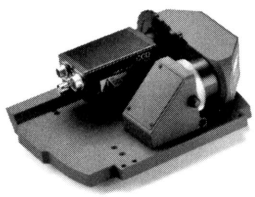

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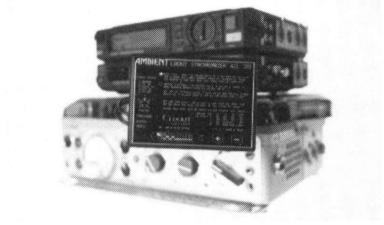

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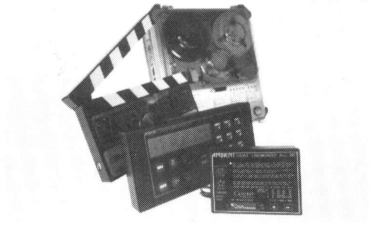

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light off the bounce that I didn't need to add anything to the actors' faces."

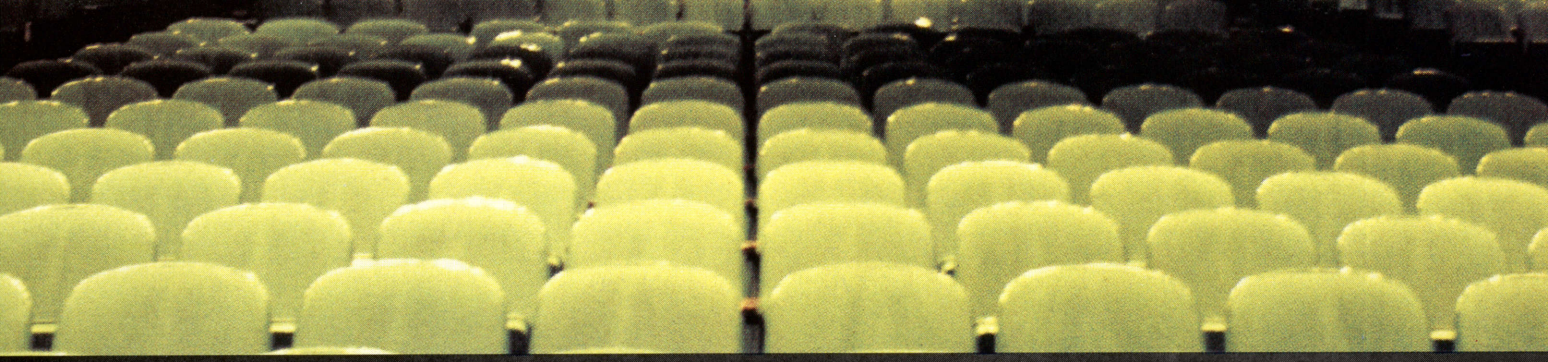
The interesting qualities of the 5239 stock are especially apparent during one of the interrogation scenes, in which Klein questions a young boy about his role in a shooting, under the watchful eye of Andre, a neighborhood cop intent on keeping the drug trade in check. Sayeed split his lighting in the scene, creating a strange, almost matte-like separation between the foreground characters and the cop in the background. "The 5239 has some really interesting densities," the cinematographer attests. "You can get different tones and contrasts based on your exposure. With the 5239, there are some places underneath the 18 percent mid-range where you can get some unique tones. In the scene involving Andre, the lighting was a little bit different on him — a little bit 'down' — and it produced that odd look of separation."

Elsewhere in the film, Sayeed's approach was dictated by the desire to shoot the locations as naturalistically as possible. Most of the film's night scenes, for example, were shot without the help of any movie lights. "A lot of our setups made use of existing practical lights — even some of the interiors, such as the bar where Strike and Victor meet early on in the film. For street scenes at night, I had the art department and the electrical crew change a lot of the bulbs in the storefronts to high-output fluorescents. That approach felt more appropriate to me than just washing the entire street with Muscos. Kodak's 5298 stock helped a lot in those situations, because it's got incredible latitude. I actually pushed most of the night stuff one stop; I could even push it two stops without it breaking up."

For a scene in which a detective on drug detail confronts Strike in the park at night, Sayeed used a combination of sodium-vapor and mercury-vapor lights to augment the existing fixtures. "The sodium lights are not high-output, but with the 98, it was the most appropriate strategy," he says. "Mercury-vapor lights go green on film; it's even slightly apparent to the naked eye. We played with the fact that the film stock was not going to compensate for the green content in these gaseous-output lights. We put a cool white fluorescent tube in the background and just let it go. We did that in a number of other scenes as well, just to add some visual pop. Robert Richardson did a similar thing for the supermarket sequence in *Natural Born Killers*. He used a more neon green, while we were trying for a blue-green. If you use an 85 [filter] and a cool white light with tungsten-based film — or if you put an 85 on the lights — it will go straight green. But if you take the 85 off and let the cool white go, it will go bluish green.

"We wanted to take a realistic approach to the lighting of the film," he reiterates. "Any expressionistic or interpretive elements were done with camera movement or the use of film stocks."

With *Clockers* at the top of his resumé, Sayeed has shown that he is a young cameraman to watch. He and Lee recently completed principal photography on their second collaboration, *Girl 6*, which was shot partially with Sony digital cameras. Summing up his feelings about the need for experimentation in the cinematic art, Sayeed declares, "The types of things we did on *Clockers*, and which Robert Richardson has been doing in the past few years, are just the tip of the iceberg; there's a world of room in terms of playing with stocks and even digitally manipulating tone, contrast and texture. If the labs are willing to push the envelope, there's no limit to what you can do. It's a very detailed process, but it is possible. I think there are a lot of stories that could be told in these different textures."



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The Sky's the Limit

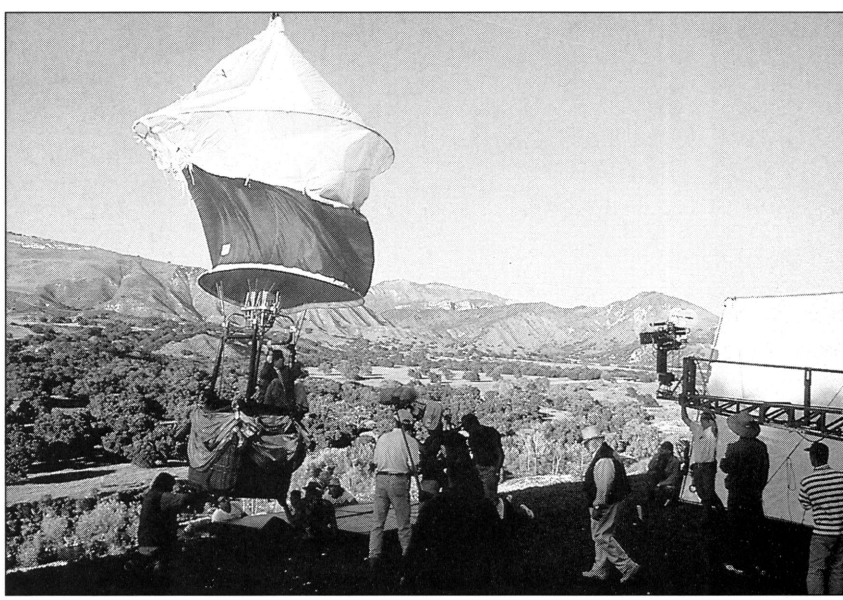
Cinematographer Frank Tidy, BSC and director Andrew Davis blend scenic coastal locations and sunlight in their fourth picture together, the dramatic comedy *Steal Big/Steal Little.*

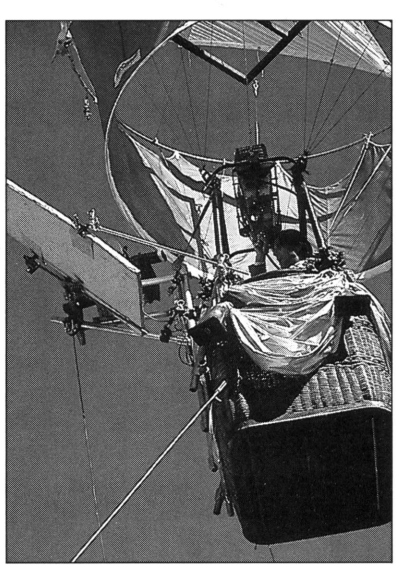
by David E. Williams

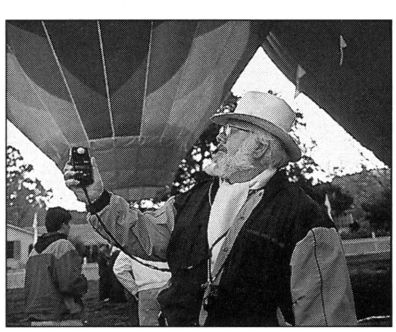
In combination with its nearly year-round agreeable weather and topographical diversity, the quality of natural light in Southern California was largely responsible for the initial establishment of the motion picture industry in the Los Angeles area. Production needn't ever stop for winter snow or the torrents of spring as it did on the East Coast. But as Frank Tidy, BSC, found while shooting writer/producer/director Andrew Davis' dramatic comedy *Steal Big/Steal Little* in Santa Barbara last spring, the legendary California climate isn't always predictable. "We had sunny weather, but we had an awful lot of rain as well," Tidy recalls with a chuckle. "We were even rained out on one location — the unit's cars were all parked in a lot beside a river and by afternoon we had frantic calls warning us that it was rising and everything would soon be under water."

But while this may be an atmospheric anomalie in the Southland, the Englishman surely took it in stride, his practice of adaptation being what it is. "Nature can occasionally change a scene into something different and more interesting than originally thought of. The trick is to take advantage of it," Tidy wrote in a recent edition of *International Photographer.*

Asked about his professional roots, Tidy begins, "I've been interested in photography since the age of ten or eleven, took a lot of pictures and had my own little darkroom when I was a kid." He was later conscripted into the British Army and stationed in Germany, where he finally bought himself a nice camera and indulged his craft even further. Looking for work in the photographic field after being discharged, Tidy joined a company that produced three-dimensional animation, primarily for television commercials. Soon, Tidy and some friends founded their own animation company in a small London studio. Their scope of work expanded as "clients would come in and say, 'We have this animation shot, but we also need a shot of a guy smoking a cigarette, can we shoot that here?'" The requests continued, with Tidy gathering lighting experience along the way. "So I gradually went on to commercials," he says. "I was then introduced to Ridley Scott and started working with him, which led to







Opposite: ***Andy Garcia hangs from a balloon high above the Santa Ynez Valley, an illusion courtesy of cinematographer Frank Tidy (left) and a series of crane rigs suspending balloon mock-ups (top) and remote cameras mounted on passenger baskets (far left).***

Photos by Richard Foreman, courtesy of Savoy Pictures

Above: ***Ruben and Laura (Rachel Ticotin) renew their romance. Sunny Santa Barbara locations allowed Tidy to shoot even interiors*** **au naturel** ***for the most part.***
Right: ***A Solstice Day celebration was shot the summer after the springtime production wrapped. Comments director Andy Davis, "The parade sequence looks somewhat hard and garish, but the rest of the movie has this beautiful side-lit quality. We had a lot of clouds and weather during the principal shoot, so we got a much richer look."***

my winning some prizes for lighting — including a Grand Prix Award at Cannes. Ridley became a very popular commercial director and made a lot of money, but wanted to do feature films. He had a couple of scripts, so he went to sit by a pool at the Beverly Hills Hotel for a month and finally convinced Paramount to finance *The Duellists*, which became his first picture. He came back to England and asked me to shoot it, which was how I moved into feature work."

And how was that transition? "The commercials we were doing always had little stories, so it wasn't that difficult," responds Tidy. "We just took it day by day and I made sure we got the light right. But a lot of the quality of *The Duellists* has to do with Ridley. He has a wonderful eye for period and style."

The cinematographer's own talents led to further work on such diverse films as *The Grey Fox*, *Spacehunter: Adventures in the Forbidden Zone* (in 3-D), *One Magic Christmas*, *The Mean Season*, *Sweet Liberty*, *The Butcher's Wife* and *Stop or My Mom Will Shoot*.

Tidy has also filmed three heavy-duty action pictures (*Code of Silence*, *The Package* and

Under Siege) for director Andrew Davis, who helmed *The Fugitive*. Their successful collaborations of the past led to another on *Steal Big/Steal Little*. Recalls Davis, "When Frank was first recommended to me, *The Grey Fox* was the film of his that knocked me out. I really liked his natural approach to lighting. And after working together for so many years now, we've become close friends."

Why do the two men get along so well? "I don't argue when he tells me what to do," Tidy jokes before adding, "Andy started out as a cinematographer, so he sometimes comes over and gets into it. He's very visual and likes to keep an eye on the compositions — but he also knows what he's talking about."

After getting a degree in journalism from the University of Illinois and working at a local PBS station, Davis studied photography and later became an assistant cameraman. In the summer of 1968, he served on Haskell Wexler's *Medium Cool* and, after shooting commercials and documentaries in Chicago, was recommended by Wexler and came to Los Angeles to shoot several low-budget features. Despite his experience, Davis was frustrated when he couldn't get into I.A.T.S.E. "The seniority system was very unfair at the time," he explains. As a result, Davis and others sued the union and opened their membership process to up-and-comers. This resolve reappears in the director's collaborations with Tidy.

"Andy's very meticulous and likes to get a great deal of coverage," the cinematographer says. "So we usually have two cameras going on almost every shot. He generally has a good idea of what he wants — which is usually to shoot everything we possibly can."

Admits Davis, "It's a blessing and a curse to work with me. I have a sense of what it takes to get a job done and at the same time I am going to put the cameraman in a position where he can do good work. And Frank allows me to work very closely with the camera — which I think is more the British system. He is also very good at working within restrictions, in terms of time and space or budget." Also the producer of *Steal Big*, Davis lightly adds, "Frank did some incredible work on this particular film without becoming a prima donna and wanting tons of equipment and huge crews to do it."

This picture also marks a definite departure for the duo in terms of subject. Agrees Tidy,

"All of the films we have done up to now have been action-oriented stuff. But this is a story that's close to Andy's heart. I'd known about it for a while, as he showed me some of the research he'd been doing. The film is based on a true incident and he adapted the story a bit."

"This film is more of a drama, although it has some action and a lot of comedic elements," explains Davis.

That it does. Set in the sun-drenched seaside town of Santa Barbara, *Steal Big/Steal Little* is the tale of Ruben and Robby Martin (both played by Andy Garcia), identical twin brothers who are adopted as orphaned boys by a wealthy matriarch. On her deathbed years later, she wills her entire estate to the more noble Ruben, who shares her love for the land. The slick Robby, a yuppie who has already targeted the property for development in a real estate scheme, quickly plots to take it over — though not before Davis can have fun with the classic comedy situation.

Says the director, "The film is similar in theme and look to two very different pictures from the same director — Tony Richardson's *Tom Jones* and *The Loved One*. The first is about inheritance and an adopted son and the second, which Haskell Wexler shot and produced, is a darker comedy about mansions and crazy California lifestyles." So have Davis and Tidy changed their methods in light of such contrary material? "I don't think so," says Davis, "but the tone of the picture has made it a different experience. There are also a lot of characters, so we're dealing with a bigger palette of faces and locations than we have in the past."

Upon joining the production, Tidy found that "Andy had worked out most of the locations he wanted. But it's set in his adopted home town and he had written the script with it in mind, so that wasn't too difficult."

Confirms Davis, "I've lived here long enough to have a sense of it the way I do of Chicago. And I think locations are very important; they become their own characters in movies. Frank and I had taken such an approach to locations before, with Chicago in *Code of Silence* and on a battleship in *Under Siege*. *The Duellists* was all about locations, too. So this film is a love letter to Santa Barbara. We had incredible locations, including two of the most beautiful ranches in California. The film has a very timeless look, partly because it deals with people who are working with the earth."

To satisfy Davis' need for coverage, Tidy almost always shot with two cameras. Including this courtroom scene, nearly the entire picture was shot on location, requiring the naturalistic cinematographer to heavily research his probable sunlight conditions.

Says Tidy of the preproduction phase and his approach to lighting the film, "Primarily my job was to visit locations and determine what the best time of day would be to shoot. But you know how it is in the film business. You tell them that a location will look absolutely wonderful between one and four in the afternoon, but you end up getting scheduled there at eight o'clock in the morning.

"I like to get a natural look on anything I do, but you have to adapt to the situation you have. For instance, *The Duellists* was a very low-budget film and I didn't go into it with a bunch of Muscos. So we had to rely on any existing light situation to a great

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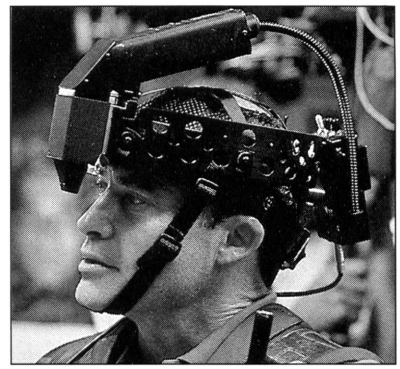


Panavision/Lightstorm Technologies' HID (Helmet Integrated Display) gave Tidy's camera operators flexibility in dealing with remote cameras mounted on hot-air balloons and crane rigs.

extent. I prefer to rely on natural light when possible, but, obviously, when you're working on a scene over a couple of days, you have to start with one look and keep it consistent.

"*Steal Big/Steal Little* is not a heavily 'lit' or stylized film like *Batman Forever*, where you have all these wonderful interiors and you play around with incredible lighting effects. This is instead set in a small town with very nice mansion interiors and outdoor locations, so in many ways we shot it *au naturel*."

Santa Barbara is one location where such a practice is imminently practical. "California has a very strong, sharp light," observes Tidy. "Of course, in Los Angeles you have that ubiquitous smog which gives you greenish-orange sunsets, but it's quite different when you get up the coast where we were. When it's bright, it's a very hard light. So you have to soften it to a certain extent, but on this movie we had to contend with a lot of very rainy, dull weather. We used that to our advantage a bit, though. It was different, breaking up the feel of the film — but problematic.

"If we had a strong sun, it was always wise to turn the actors around and get a good back light to fill their hair, so then it would just be a matter of filling in shadows on the face. Most of the time we would try to use reflectors, a big Griffolyn frame or soft boards. I would also warm any artificial fill light I used.

"The skies in California are a very rich, strong blue, so I didn't really need to grad them down on sunny days, but I would use Pola screens to increase the contrast in the sky and bring the clouds out. We also used ND filters quite a lot. I don't like shooting at too high a stop, and we were shooting on Kodak 5248, so I would regularly use 85 NDs on sunny days to bring things two or three stops down, to f5.6 or 8." Tidy adds that he is loath to using any additional filtration for effect and primarily used "Primo primes and a couple of Primo zooms for anything long; once or twice we used a 1000mm Canon for an odd shot. We ran the gamut." When pressed for specific reasons why *Steal Big* was shot in the spherical 1.85:1 format, he confesses, "To be honest, I'm not an enormous fan of the widescreen format. It does give you more scope, so it's good if you're doing big adventures with 5,000 extras gallivanting about. But if you're doing an intimate comedy, anamorphic isn't a help."

When rain did threaten a scene established in daylight, 10K and 20K HMIs were brought in to replace the sun. For the funeral scene, though, Tidy enhanced the rainfall as much as possible to heighten the melancholy mood. "It was raining like hell when we shot that," he remembers. "So instead of fighting it, we used some slightly longer-focus lenses to bring the rain out a bit more — you read more depth into it. We also did quite a bit of Steadicam work there because Andy really wanted to get a lot of movement in the scenes. Of course by the time we were ready to shoot the wake later that afternoon, things had brightened quite a bit, so I hope Andy's found a shot of the sun coming through the clouds to bridge the two."

But a much larger gap for Tidy and Davis to fill was the one between the characters of Ruben and Robby. In order for

"When I got to New York for the shoot, some of the equipment I'd been promised wasn't available after all. So I finally said: Give me the phone..."

"Most of the time, I take Clairmont equipment with me on location," says Michael Givens. "Even to places as far away as France and Italy and Hong Kong. I've also taken it to shoots in Canada, Mexico and New York."

Shipping costs

"But on one job I did for a New York production company, the finance people there questioned the shipping costs in my budget. So the company decided the camera gear should be rented in New York. "Everything you'll need is here," they told me."

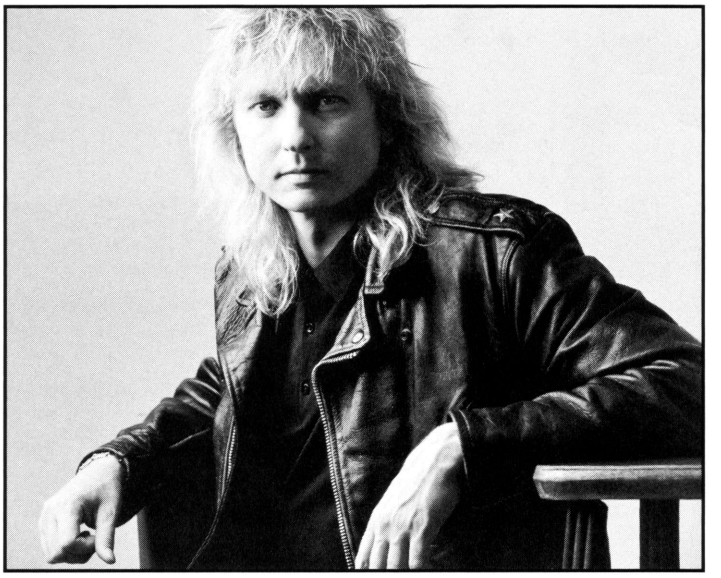
Crucial filters

"This commercial called for 200, 300 and 600mm Nikons; and I needed a wide range of corals and soft-cons and correction filters. Grads would have been helpful—but those would require Clairmont's rear-mounted rotating stages."

Not available

"I arrived with my own set of 40.5mm filters that I use with Clairmont's Nikons. But the Nikons rented by the company had 48mm rear-mount threads; and you could use only one filter at a time. Anyway, the filter range I needed wasn't available in 48mm, *anywhere in town.*"

"So I finally called Clairmont and explained the mess to Terry. He put three of his PL mount Nikon telephotos and all the grad filters I asked for onto the next plane out of L.A."



Michael Givens has been a Director/Cameraman since 1990, directing TV spots for (among others) Club Med, DHL, Federal Express, GMC and Reebok. His D.P. credits include AT&T, Chanel No. 5, Kellogs, Lark, Marlboro, Michelob and Nissan.

Director/Cameraman Michael Givens

Buttoned up

"And I knew I could *trust* those Clairmont Nikons. The camera department should be the most buttoned-up on the set. That has always been important to me—ever since I was an Assistant. Now that I'm wearing two hats, I want tools I'm familiar with, from a place I'm familiar with."

"I work a lot of remote and difficult locations," says Mr. Givens. "Out there, it's going to take some time to replace anything that breaks, no matter *who* you rented it from. So it's mega-important to go with cameras and lenses that the right people have serviced."

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For a sequence set at a used car lot in Chicago, Tidy utilized strings of household 150-watt bulbs to achieve a "cheap, gritty look." In addition, the lighting strategy conceals the actual Santa Barbara location as, says Tidy, "it prevented any need for a skyline and kept the light focused low — you can't see a palm tree at night if you don't light it."

audiences to fully believe Andy Garcia's dual role, the effect had to be completely convincing.

"You have to sell the story of there being identical brothers and therefore dream up the shot that will show both at the same time," says Tidy. "We spent a long time working that out and finally went for an optical twinning effect, but we kept it to a minimum. Our visual effects supervisor, Peter Donen, is extremely good with that sort of thing."

Says Davis of their approach, "We were just dealing with it as we would any two characters. When you have a scene with two characters, it's not often that they are in the same shot — especially when you do a lot of over-the-shoulder work. We have several scenes where [the brothers] are intercut or near each other, but we don't see them in the same shot. Then we have a major sequence where they *are* seen together."

Explaining the initial reveal of the twins, Tidy says, "We made it an interior so that we had good control over the area, and it was one of the few sets we built. It takes place in Robby's house with him in the bath chatting away to his girlfriend as Ruben, the good brother, enters and they have a bit of a discussion. Robby walks toward the camera as he talks to Ruben, who has his back to us. He passes, exits the frame and finally Ruben turns around — and it's still Andy Garcia. It was quite simple. We did two runs for each element, using a video monitor and playback to make sure we didn't have any nasty overlaps, and then did it as a computer composite. We thought about using motion control, but decided the shot worked better static. There were several shots like that, where we had to use optical work, but were lucky because Andy Garcia has a stand-in who is a very good match for him; we could get by a lot with the over-the-shoulder stuff and singles. But in any long scene we would also have to sell the illusion with a composite."

Recalls Davis, "The worst shot to do was in this initial meeting. Just after they walk out of frame they have a discussion in Robby's dressing room, which has about eight mirrors positioned carefully to show side and front reflections of both characters. We had to be extremely careful about camera placement there. Peter Donen was very helpful in this scene, designing a set with all these mirrors so we could not only show you two guys, but *eight* guys, just to blow off the expectations of the audience. Because once the viewers get past the issue of having both brothers in the same frame, they can get into the story, and we aren't obligated to keep doing it. So we will only have five or six twinning shots by the time we're finished editing, all done greenscreen digital."

When asked if anything special had to be done for these composites, Tidy notes, "I have done a lot of bluescreen work, which is a help, especially as it allowed me to understand exactly what Peter needed for his job. We shot the film primarily with our Panavisions on 5248, which has a very fine grain, though there was perhaps one shot that we did in VistaVision just to be working with the much larger negative. We also used 5298 for our night shooting or when we were really losing the light."

Tidy didn't use any different approach in lighting or framing to differentiate the twins, because "the characters were quite different on their own. Robby is a slick operator who lives with a lot of expensive surroundings, so we would match the lighting to that environment. Ruben lives as a farmer, so we used a much simpler style with him. It's a great deal of effort for the actor, playing both the heavy and the hero, and it takes twice as much time to shoot anything where the two of them are together, but apart from that, we didn't do anything specific."

However, *Steal Big/Steal Little*'s elaborate finalé, which involves a hot-air balloon chase, demanded that Tidy become *very* specific.

Despite heavily storyboarding the scene, Davis recalls, "I was never able to go *up* in a balloon or see one fly until the day we shot the sequence, so we were really scared. But we went

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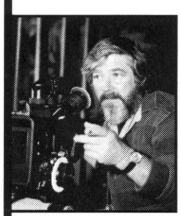

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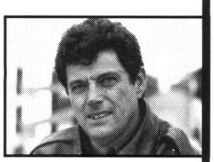

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out there and God was on our side. We had three balloons flying, a helicopter, horses running and guys falling out of balloons — all in one shot. And we were really lucky because we were able to do it several times. So we just figured out where to put the cameras so we could cover our butts."

"We used a *lot* of cameras," confirms Tidy, "some actually in balloons. The passenger baskets were tiny and there was very little room, though on occasion we had an operator in there with a handheld Arri 2C and wide lenses on the actors. If there wasn't room for an operator, we also used remote cameras with us watching monitors on the ground below."

But to get the necessary coverage, other methods were also used. Adverse to achieving the flying effect with composites, Davis explains, "We created the synthetic ballooning shots on this incredible cliff overlooking the entire Santa Ynez Valley."

Camera operator Frank Miller, another veteran of Davis' shoots, specifies, "We actually did it three ways. In the first, we were using a huge industrial crane that took both the balloon basket mock-up and a camera platform up about 60 feet above the edge of the cliff, which was about 200 feet high — giving us an effective height of 260 feet above the valley floor. That gave us a great background and by swinging the crane arm we got a really good illusion of flight."

The independently suspended camera platform included two 10K HMIs on either side of the camera for fill, but problems with moving shadows prompted Tidy to kill one.

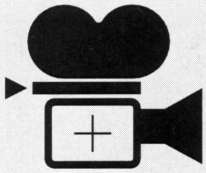
"The second method was to suspend the balloon platform from the of end of crane, which was then swung around and shot from the ground," Miller continues. "But Andy wasn't happy with what he was seeing. He wanted more movement, so we came up with the third way. With the balloon still suspended from the industrial crane, we put the camera on a hothead at the end of the dollied crane below. So we could boom up and dolly in around the basket to give it a feeling of movement as the main crane raised and lowered."

When high winds threatened to topple the huge crane off the cliff, the mock-up balloon's upper silk skirt was removed to decrease resistance, allowing the crew to safely continue. Says Miller, "It was getting pretty hairy at the end of the day, and of course Andy Garcia was by then the only one up there in the basket — we were down looking at the video monitors."

But the high-wire act continued, says Tidy, as "we finished the sequence with a rather elaborate stunt in which Andy Garcia's stand-in, from a real, free-floating balloon, grabbed a rope, leapt out of the basket and swung around the entire balloon. He was about 300 feet off the ground and 90 feet out from the basket as the balloon descended. He then dropped onto the back of a galloping horse. We did it as a single shot wide and then did a cut-in shot with Andy Garcia landing on the horse from about 20 feet to complete the effect."

Tidy covered the ballooning sequence with five cameras, equipped with 10:1 and 5:1 Primo zooms, from various points around the valley location. "Our aerial cameraman, Frank Holgate, also did some very good helicopter shooting around the balloons — filming it himself with a Tyler mount from the door," he adds.

Asked if Davis just can't help but add thrills to a scene, Tidy reasons, "Well, because of his work as an action director, Andy tends to want a lot more action *in* the scenes. This isn't the drawing-room sort of comedy where actors are bouncing jokes off each other." Pausing, the cinematographer concludes, "Of course though, if they aren't *giving* you any comedy, you won't be *getting* any."



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His face a mask of death, Anthony (Larenz Tate) has returned home from the horrors of Vietnam only to enter a nightmarish world of crime. Cinematographer Lisa Rinzler used lighting to "help the psychology of the mood come across."

1993's *Menace II Society*, an ambitious and powerful film that broke new ground with its portrayal of a violent African American sub-culture, left critics and audiences electrified with its brave filmic vision — boldly announcing the arrival of co-directors Albert and Allen Hughes. *Dead Presidents*, the 22-year-old brothers' highly-anticipated second feature concerning the travails of a young black Vietnam vet, continues the promise of their directorial debut, while the images in both films proclaim the talents of cinematographer Lisa Rinzler — demonstrating daring style and the innate ability to tell a story with a camera.

As a young girl, Rinzler had a fascination with drawing and painting; the road to cinematography began more subconsciously. Black-and-white films such as *Sunset Boulevard*, *Johnny Apollo* and *Madame X* left strong impressions, which created a fertile terrain in her imagination. "I took away psychological images from those films," Rinzler recalls. "To see them today they don't look anything like the *feeling* I remember them creating, but that is what shooting is about — what you perceive something to look like, rather than what it actually does look like."

Rinzler initially pursued art studies at the Pratt Institute in Brooklyn, where she began to uncover a yearning to express herself through cinematic imagery. "I was painting with motion a lot," she remembers. "Suddenly, light wasn't the only issue. Motion was involved and I couldn't quite get it all in painting. I must have had some dream I don't remember, because one morning I woke up and said, 'That's it! I'm switching to film.'"

Rinzler made her first short at Pratt and then applied to the film program at New York University as her desire grew. "I knew instantly that I wanted to become a cinematographer. Operating the camera felt very natural for me," Rinzler explains.

At NYU, Rinzler had influential experiences that helped to shape her career. As a production assistant on a professional film shoot she quickly found herself in the camera department, where she gained valuable first-hand training. She also shot two short films for photographer Robert Mapplethorpe, who taught her "lessons about commitment — about being more into your subject than just photographing it," Rinzler observes. "The subject comes first; photographing it naturally, organically, comes second. I was enamored with Robert because of his commitment."

After leaving NYU, Rinzler learned her craft as a camera assistant to director of photography Nancy Schreiber in documentaries and as second as-

Three Moods Prevail in *Dead Presidents*

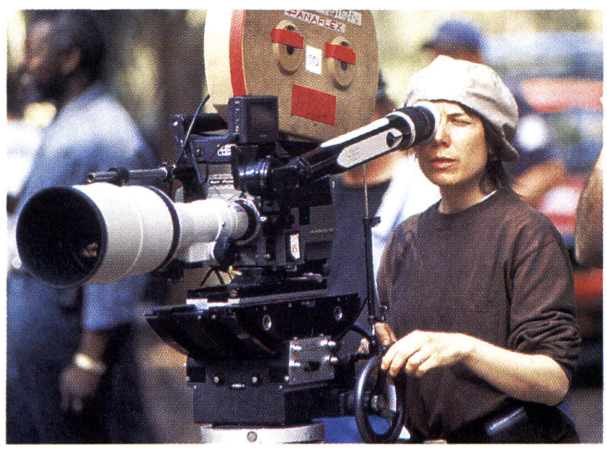
Cinematographer Lisa Rinzler and co-directors Albert and Allen Hughes conspire with danger and darkness in their Vietnam-era heist picture.

by Vincent LoBrutto

sistant to Fred Murphy in features. She calls Murphy her "mentor and biggest encourager and supporter. Fred had me diagramming his lighting setups. There was a great beauty in studying someone's work that closely. It made me look at every lighting unit and question what it was doing.

"Fred also taught me about being on the set. He was such a gentleman. A large part of being a director of photography is functioning on the set. It's being diplomatic and dealing with the production aspects, equipment coming and going, with time pressure and people leaning on you. Fred had a very gentle manner, yet he stuck to his needs and fought for them."

Rinzler worked with Murphy on *Eddie and the Cruisers* and the television film *Trackdown: Looking for the Goodbar Killers*, and was a first assistant on *Death of an Angel*, starring Bonnie Bedelia. Her participation as a camera assistant on many documentaries, including *Seeing Red* and *Abortion Clinic*, helped hone her technical skills and her ability to work fast under constant pressure. These projects also served to develop Rinzler's burgeoning social conscience.

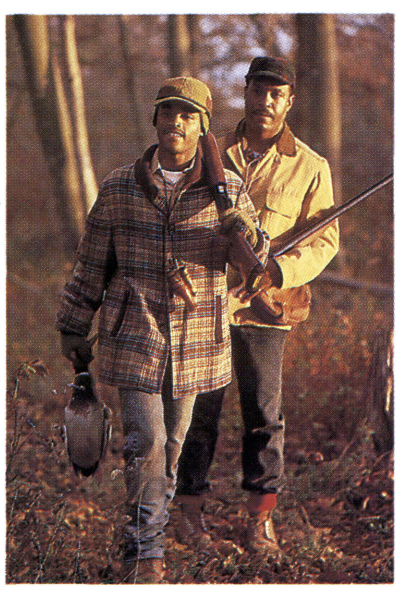


Rinzler has gone on to shoot a number of documentaries, including *Hookers, Prostitutes, Pimps and Their Johns*, a Beban Kidron film about prostitution in New York City; *No Sense of Crime*, Julie Jacobs' film about women involved with men on Death Row; *Kitty* for Mike Barker, about a circus performer; and *Reverse Angle*, directed by Wim Wenders. Rinzler intends to continue work in documentaries as well as features. "It is an entrance and education into lives that I otherwise would not have access to," she explains.

After photographing several music videos for Tamara Davis, Rinzler shot the director's first feature, *Guncrazy*, a contemporary film noir effort starring Drew Barrymore. The film's evocative color and moody, atmospheric lighting help tell the story of an ill-fated young woman. Rinzler also photographed Nancy Savoca's first film, *True Love*, which uses lush saturated hues and naturalistic light to depict the travails of an Italian/American courtship.

Rinzler met Albert and Allen Hughes through her association with Davis. The brothers saw Rinzler's reel, which included rap videos shot for Davis and a black-and-white White Diamonds perfume spot starring Elizabeth Taylor, the latter offering a film noir look with a touch of James Bond elegance. In turn, Rinzler saw *The Drive-by*, a Super 8 film the Hughes brothers had made together. "It was brilliant," Rinzler recalls. "I just loved the roughness and economy with which it was shot. It was very to the point and I liked the subject because I was working on a lot of rap videos and had been around young black culture, so my eyes and ears were open. I was pulled in by the cleverness with which it was done."

The trio met and Rinzler expressed her admiration for *The*



Photos by K. C. Bailey, courtesy of Hollywood Pictures

Above left: ***Rinzler initially approached the Hughes brothers to help them with a Super 8 project. She instead shot their 35mm debut,*** **Menace II Society.**
Far left: ***Rinzler gave*** **Presidents'** ***pre-Vietnam sequences a "brighter, more saturated and hopeful" tone. Also note the different context given Anthony's shotgun.***

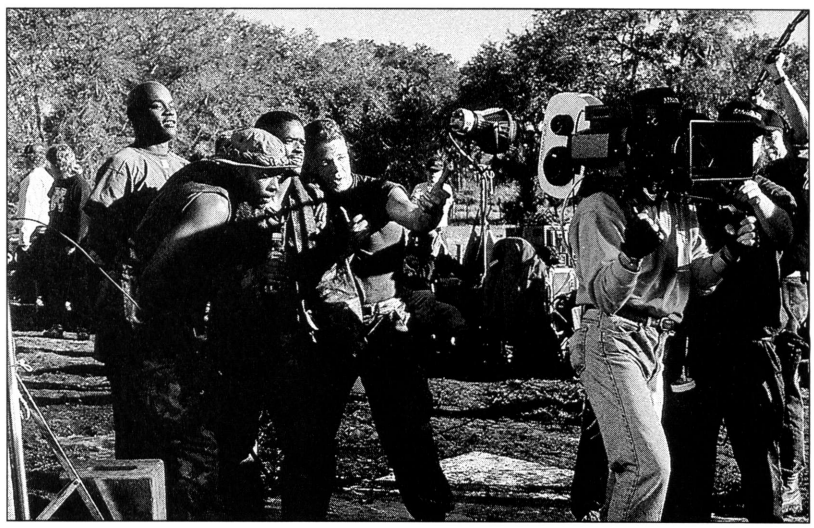
Above: ***A firefight sequence gets extra energy from deft handheld camerawork.*** **Right:** ***Operator John Sosenko practices a move with first assistant Alec Boehme (behind camera).***

Drive-by, offering the brothers, "If you ever want to do a Super 8 film, I'll shoot it for you, and if you don't have the money, don't worry about it." Within months, Rinzler received a call that the two had the green light to shoot their first 35mm feature, *Menace II Society*.

That film began the unique collaboration between the directing duo and Rinzler, which now includes two features and a music video about Marvin Gaye. Rinzler stresses that Allen and Albert direct their films together. "They are a team," she says. "The way the brothers divide it up is that Allen Hughes works with the actors and Albert Hughes works with me in terms of the camera and the lighting. It's not like Allen would say to Albert, 'I want this actor, that's it!' They discuss, and they agree or disagree, and then they work it out. But they have their areas of focus and that makes it smooth enough for two people to be at the helm. They overlap in terms of having say. They are both directors."

During the two-year span between the release of *Menace II Society* and *Dead Presidents*, Rinzler maintained a steady dialogue with the brothers. "Albert and I kept up a big fax relationship: 'Look at this, look at that,'" she explains.

On *Dead Presidents*, Albert and Allen conferred about the look of the film, while Rinzler and Albert worked together planning and visualizing it. "We made up a shot list, and then two storyboard artists did sketches. Albert and I did an immense amount of preparation," she states. "By the time we got to the set we were pretty much just grunting at one another, nipping and tucking the camera operating and the lighting. There was very little conceptual discussion. Prep is essential."



Looking for period influences during the preproduction period, the filmmakers screened many "blaxploitation" films of the Seventies, such as *Superfly*, *The Mack* and *Shaft*. Rinzler also showed the brothers still photographs to communicate visual style. "It was a quick way to see the lighting and framing in something," she says. Another inspiration was *Midnight Cowboy*, directed by John Schlesinger and photographed by Adam Holender, ASC. Rinzler recalls, "I was grateful to find out that they also loved *Midnight Cowboy*, because I was wondering, 'Will a pair of 22-year-old young men relate to this film?' I was really relieved and excited to find out that they did, because to me it was emotionally and visually a synchronous experience."

In fact, Allen and Albert Hughes are rabid cinephiles whose key influences include Martin Scorsese's *Taxi Driver* and *GoodFellas*, as well as the films of Sergio Leone. "They love the framing of those two directors," Rinzler notes. "We really referenced them a lot on *Dead Presidents*."

Dead Presidents is set between 1968 to 1972, beginning as Anthony Curtis, a young middle-class black man played by Larenz

Shotgun in hand, Anthony makes a break for cover. Rinzler rendered the Vietnam sequences as "hot, frenetic, urgent and confusing."

Tate (who debuted as O-Dog in *Menace II Society*) goes off to Vietnam instead of college. When he returns to America, his country is not waiting with open arms. Curtis' reentry is rocky and he and his friends see only one way out: they plot to acquire cold hard cash — which they dub "dead presidents," in reference to the deceased commanders-in-chief on different denominations of bills — by any means necessary.

The visual design of the film was structured around the changes in the characters' lives. "It was like a three-act experience," Rinzler explains. "The scenes before Vietnam are brighter, more saturated and hopeful, with more sun. Vietnam is hot, frenetic, urgent and confusing. Once we come back to America, the look is colder, drabber, more dangerous and mysterious, with more darkness."

As in *Menace II Society*, *Dead Presidents* is filled with camera movement that expresses the anxieties and emotions of the characters. Rinzler strove to combine techniques to suit the requirements of various scenes. "There was always a lot of movement in the film," Rinzler says. "You're dealing with a young character who moves a lot. He was meant to be about 18, so there's a lot of energy going on.

"For a scene in a pool room earlier in the film, we had a fairly big shot and we wanted to shoot it handheld, but I thought it might be too rocky in the location. But Dennis Gamiello, the key grip, made a little speed-rail cart, and the operator handheld the camera on the cart; we got the best of both worlds without calling attention to ourselves."

Steadicam work was used "judiciously and sparingly" on *Dead Presidents*. "In the Vietnam sequence we used a lot of handheld and a lot of handheld on a dolly. We didn't use any Steadicam at all," Rinzler explains. "In other parts of the film we used Steadicam because it was appropriate. There are times [in today's films] where it's really right, and times where it's overused. It has become a very accessible tool, but I think it will find its place the way zooms have."

The challenge of lighting *Dead Presidents* was in "using light to help the psychology of the mood come across," Rinzler comments. "We wanted to have the film to feel both natural and somewhat dark at the same time." For a scene in a church, Rinzler effectively matched her lighting style to the dramatic elements in the script. "In the scene, a preacher is asked to join in on a heist," she explains, "so we agreed it was appropriate to go for the master shot in silhouette, and I do mean silhouette — there was no light on the faces in this shot. In the close-ups, of course, Albert and Allen wanted to have enough light to see the faces."

During production of *Menace II Society*, studio executives had intimated that the dailies were too dark, but the brothers fought for the look they believed in. "It wasn't a bright world that we were filming," Rinzler states. "The Hughes brothers are great protectors and allies. They said, 'Just keep go-

ing.' They're very strong in their own vision. They listen to their own inner guidance. I run the lighting ideas by them, and I run the colors by them. I show them gels. I also run the style and filtration by them. We haven't had any real lighting battles. Sometimes we go at it over camera style — what I think, what they think.

"*Dead Presidents* was predominantly a tungsten film, lit almost entirely with directional bounce light, thereby creating contrast; we flagged everything carefully to keep the light from going where we didn't want it to go, and to make sure it went where it was meant to. The approach was intended to heighten the viewer's sense of reality in a natural, non-obtrusive way."

In comparison to *Menace*, "We used much less smoke on *Dead Presidents*, almost none," Rinzler adds. "Smoke is a real tell-tale lighting diagram for the viewer. On a good film you shouldn't be watching the lighting. The goal on *Dead Presidents* was to be seamless, to be organic in the camera design and the lighting, to be somewhat understated. I felt it was very important to achieve the right balance of style and realism. You're not just recording on film; the idea is to express a story and the mood of the characters without calling too much attention to the technique. Some of the most beautiful images in movies, still photography and paintings speak in a quiet way. Loud stripes of light can be appropriate, but often they are imposed. Quiet photography is something to work toward and be comfortable with. As a cinematographer you don't have to say, 'Okay, look at me, I did this.'"

Rinzler was expressive with color when the story lent itself to an interpretive approach. "There is a character called Skip who dies of an overdose," she

Q & A: Albert Hughes

***AC:* What did you and Allen see in Lisa Rinzler's reel that made you feel she was the right director of photography?**

Albert Hughes: I was still in film school so we were at the stage where we thought nobody of her stature would ever work with us. Every segment on the reel was in the same style we were doing back then. It was stylized, but at the same time it was run-and-gun; it was docu-style. There were flashes of a lot of elements mixed in. It wasn't a conservative, polished Hollywood kind of thing. The moves were the exact moves my brother and I were talking about. Lisa saw *The Drive-by* and said, 'Look, I want to work with you guys and I want to shoot one of your student films for free — just call me up.' We were blown away, but we thought she was joking so we never called her. We saw her a month later and she was like, 'I really meant what I said.' Tyger Williams had written the script for *Menace II Society* and we were still in the early stages of the film. Nobody had backed it; we were just some kids who were putting together a script. There were no guarantees at all but I said, 'We have this script, I really want you to do it.' I was telling her how slanderous it was towards America. That really attracted her, so I sent her the script and she loved it. Then all of a sudden New Line financed it.

How has Lisa's work in documentaries impacted on you?

Hughes: My brother and I thought, 'She shoots a lot of documentaries, so she's used to capturing regular life,' but even when you do a run-and-gun thing with her she's manipulating little aspects of it. So it's not totally documentary: she has a filmmaker/documentarian thing going at the same time.

Were you involved in selecting the equipment used on *Dead Presidents* or did you leave that up to her?

Hughes: Lisa is really very collaborative. In fact, she wants you to come with your ideas first. Then where you fall short, she'll come in with her ideas. I vaguely know about a lot of equipment. My brother and I have been big behind-the-scenes people since we were really little. I could point out certain things — 'This equipment makes you go down like this. I want this kind of head because that kind jerks too much for me.' I have a big problem with fluid heads. I don't like them. I like using the wheels, because they're smoother. So as much as possible I tell Lisa to go to the wheels. At first I didn't know the names [of the different devices,] but I knew what I wanted out of each piece of equipment. For the crane it was easy enough to say, 'I want to neck inside here' and Lisa would say, 'Oh, we should use this crane.' But her way of using the equipment is not the same as other cinematographers. She always wants the grip to build the equipment for us. She wants to customize the equipment. She definitely creates stuff for herself.

What are some of the movies you've used for reference on your films?

Hughes: My brother and I are after a look. It's about lighting. We look at a lot of films. *The Killing* was a big one for Lisa even during *Menace*, when we wanted to move through walls. I don't think it worked out too well on *Menace*, but then on *Dead Presidents* we hit it right on the head on this one move. We would say, 'We want that *Asphalt Jungle* style, that real dark and noirish kind of thing, and at the same time we want to have these real

remarks. "As soon as I read that scene I thought, 'Green is a good color for death by overdose,' and I asked the production designer David Brisbin, 'Could you give me a green lamp?' It had an oval, light-green shade, so we spent a lot of time gelling it darker. That lamp motivated the use of green light.

"We always tried to work with light that was appropriate to the story. There is another scene in which people are planning the heist at a table and they lean in and out of light. The brothers had seen *Asphalt Jungle,* and they came to me and said, 'We want people to lean in and out of sharp cuts of light.' So we worked with a raw 2K bulb, which is very rough on faces. There was no diffusion on the bulb and no diffusion on the lens. The characters had eye sockets depending on how steeply overhead the light was placed. It was not pretty, but it's not meant to be pretty."

When Tony is arrested and taken off to jail, his sadness is illustrated in his reflection on the window of a prison bus. The scene developed during a ride back from a location scout. Rinzler explains, "We planned to make a series of shots of shackled feet and move up to faces. Dennis Gamiello said, 'Why don't we just do it as an overhead shot?' Albert's ears perked up, and he said, 'Yeah, that would look great!' The top of the bus was literally cut off as if with a can opener, and the bus was parked in a studio. We shot the reflection on location first, saw the dailies and picked which lighting we had to match. The gaffer, Bill O'Leary, set up a bank of 10Ks on one side and nine-lights on another. Two electricians ran through the 10Ks with wooden, jerry-rigged items simulating trees so that a moving, broken-up light would go by. A truss bridge was built over the top of the bus

hard visuals.' We like the style of Robert Richardson, what he does with filters. The heist planning in *Dead Presidents* is so dark in the way it was lit. We always reference other movies. I've got a video color printer now, and I just color-print the shots I want from a movie to give to Lisa. We make up whole books of the shots we like from other movies. It's important for me to have the best color I can get from the movie and they are Kodak quality — there are no glitches, no video thing at all. It's a perfect picture with letterbox.

How would you describe the photographic style on *Dead Presidents*?

Hughes: It's not as flamboyant as *Menace* [in terms of the camerawork,] but it's more flamboyant in the lighting. I think this film takes bigger chances, even though people thought Lisa took a lot of chances on *Menace* as far as how dark she lit some things. We took a lot of chances on this one; it's really contrasty. We wanted a classic feel, but at the same time we wanted a gritty edge. We didn't want a polished Hollywood look; we wanted the camera moves and everything to resemble a big production, but at the same time to still have that street edge.

I understand you use a color monitor for video assist and were surprised to learn that almost no one else had used one.

Hughes: I was shocked. [Gaffer] Bill O'Leary, who works with Roger Deakins, said 'God, what is this, a color monitor? I've never seen one of these on a set before.' I said, 'Whoa, you work with Roger and you've never seen one of these?' Other crew members would come up and say the same thing. A long time ago somebody told me they don't take well to low light, but I've never had that problem. People say, 'All you need to do is look through the camera and see what's on the set to see your color,' but I say, 'Let me see the flame in color.' I don't think any director of photography will agree, but my take is that the difference between a black-and-white and color monitor is that black-and-white doesn't show the contrast of a film as well. The color monitor seems as if it has these little grains in it, and the grains look like low-light film. When I see that, it seems like film to me.

During a take are you watching the monitor or the scene?

Hughes: I watch the monitor. Allen will watch the scene sometimes, because he's watching

Directors Albert (with viewfinder) and Allen Hughes (in back) confer with cinematographer Lisa Rinzler.

out for the performances.

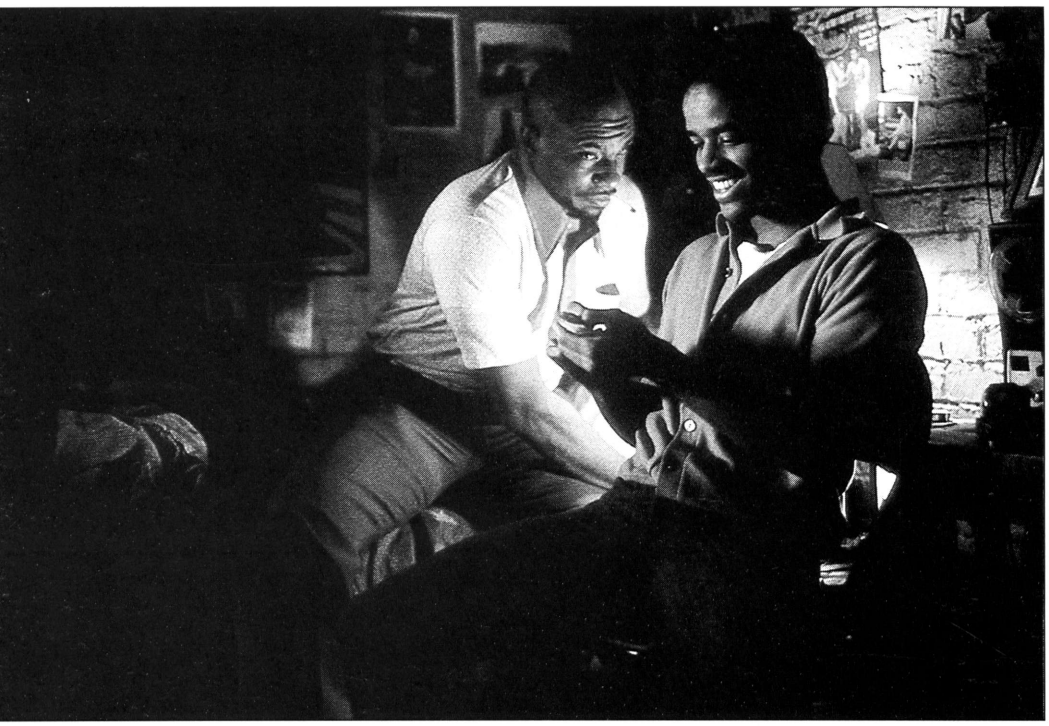
What is your concept in terms of photographing actors?

Hughes: We don't like to get too many marks. We like to be as natural as possible so we don't put the actors in an uncomfortable position. We just want to light them more loosely; Lisa is more specific about it.

How will you work with Lisa on the timing of the final print?

Hughes: I'll see a timed print that the lab did and I'll give them corrections. Then Lisa will fly out here and we'll start correcting it. I've got my finger on her taste, but I know she's definitely going to make a lot of changes. I'm glad that she's really hard on keeping it saturated and keeping it dark, so I won't slip on that.

— Vincent LoBrutto



Above: ***Kirby (Keith David) and Anthony make a plan. Rinzler notes, "We wanted the film to be natural and somewhat dark at the same time."***
Right: ***Cowboy (Terrence Howard, standing) and Anthony at the pool hall. Rinzler describes the set as production designer David Brisbin's "tour de force." Space for overhead lighting fixtures was created within the ceiling's ductwork.***

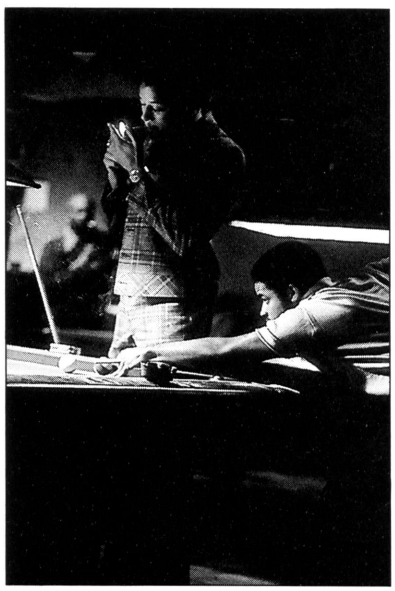
that dollied down over the top and to the side at the same time. So this overhead shot that started as a 'what if' by Dennis appears to be a simple, unnoticeable shot, yet it took immense time, planning and preparation."

Dead Presidents was Rinzler's first union film. She largely credits the crew with the success of the production. "I was truly blessed," she acknowledges. "Bill O'Leary, the gaffer, works pretty exclusively with Roger Deakins, ASC, and Dennis Gamiello is a terrific key grip. My biggest desire on *Dead Presidents* was a softer but contrasty light, and Bill had worked in that style a lot. He had worked on *The Hudsucker Proxy* with Deakins and the Coen brothers, and on *The Shawshank Redemption*. Dennis had key-gripped for Scorsese on *The Age of Innocence*, and for the Coens on *Raising Arizona*. They both had really been around the block, yet they were very spirited and enthusiastic. It was exciting for me to have that kind of support and collaboration. Dennis was extraordinary at rigging and he had the tightest bunch of grips — rigging grip John Lowry and dolly grip Eddie Lowry — who were skillful, delightful people. The best boy, Bill Moore, was a mastermind at creating little light rigs, like lights on chasers for car rigs. Rigging gaffer Richie Ford also had done huge movies and he could really advance and pre-rig a set. The rigging grip, John Lowry, did great pre-rigs. The camera scenic, Rochelle Edleson, was amazing as well: she could age down a wall within seconds if something was too white or too new. On any film, there's huge pressure, and you need every operation to be as smooth as possible."

Rinzler also had high praise for first assistant Alec Boehme. "Alec was great. It was a hard job for camera. There was a lot of violence in the script. Whenever there's violence, it means multiple-camera coverage. We were working at low f-stops, which made for difficult focus-pulling."

On *Dead Presidents*, Rinzler made the transition from running the camera herself to working with an operator. "It was very hard for me not to do the operating," she concedes, "because I can see things more clearly through the camera. The operator has to sort of step aside during the lighting process. As soon as I could I gave the camera to John Sosenko, the camera operator, to practice the moves, but in terms of the lighting I really need to see it through the frame. I'm not comfortable working with a video monitor. A lot of times during the actual takes I stood at the camera. I would watch a take or two on the monitor for the operating, and I was very specific with John. Backgrounds are important: they are a quiet psychology. It made all the difference whether someone was framed by just a wall behind them, or to move over three inches so you could see the depth of a corridor or the narrow depth of a bar in the background. I would watch the monitor enough to be assured that I was getting what I wanted in the operating, but I also stood by the camera to watch the actors in the light."

Rinzler selected 5298 stock for the interiors and 5293



for exteriors. "We basically used only two stocks. I had toyed with using 5245 for the more bright and cheerful saturated scenes, because it's fine-grained and lovely, but daylight was fleeting because we were shooting in the fall. Our day went from 7:30 to 4:00, and then bam! — the light was done. So we used 5293, which is con-

trasty, and 5298. We shot *Dead Presidents* in Super 35mm, and I didn't want to use 5298 for the interiors. I started with 5293, but its 200 ASA rating meant more lights and more crew people, so we wound up going to 5298 because we could use a little less light and have a bit more f-stop.

"We tested a lot of filtration, which I later threw in the garbage," she reveals. "We used the lightest Black ProMist — this was almost a non-filtered film. We worked with Don Donigi and Steve Blakely at DuArt for the dailies. Don oversaw the timing, and he's really an unsung hero. The man is a great synthesis: he knows technique and he knows what people want. I did lighting, contrast and filter tests and asked him to leave the filtration in. Then I asked him to time it out. From seeing the tests, he got a sense of what we were after, and he became a great aesthetic ally. If you're pleased with your dailies, you want your answer print to look like a good set of dailies; they are very critical."

Dead Presidents was shot with Panavision cameras, and Rinzler found the Primo lenses effective for working in Super 35mm. "The Primos are great sharp lenses and they're very good on flare," she states. "For a Super 35mm blowup, you don't want flare and you don't want it soft. I found that longer lenses were better in Super 35mm. A 35mm became the normal lens. The backgrounds become far off in a hurry when you use a wide lens, so a little bit longer lens is good. A 75mm is great for a close-up."

Studio work was accomplished on two stages at Empire Stages in Queens, New York. Production designer David Brisbin worked very closely with Rinzler in designing colors to accommodate the lighting style. "David did a great job on the sets," Rinzler enthuses. "He had a great scenic crew and a great art director, Ken Hardy. His tour de force was the pool hall set. It was really

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beautiful; it felt old and lived-in. It was a russet orange color with checkered linoleum. David and I discussed the ceilings at length. He wanted a tin patterned ceiling, and I felt we had to have some removeable pieces and some beams to hide lights that would occasionally get placed up there. He was very attached to this tin patterned ceiling, though. While doing some research, he found a pool hall that had a tin patterned ceiling with ducts, so we both got to have our cake and eat it: we used the tin patterned ceiling, and we hid the lights behind the ducts."

Rinzler's list of favorite films is a varied one. She admires the urgency of *Mean Streets* and *Midnight Cowboy*, and calls *Raging Bull* a "synthesis of camera and story." Other films that have left an indelible mark on her are Rainer Fassbinder's masterwork *Berlin Alexanderplatz*; John Huston's *Fat City* (photographed by Conrad Hall, ASC), and Wim Wenders' *Wings of Desire*, *Alice in the Cities* and *An American Friend*. (Rinzler collaborated with Wenders when she shot *Lisbon's Story* before principal photography began on *Dead Presidents*.) *The French Connection*, photographed by Owen Roizman, ASC, was an early influence that had resonance on *Dead Presidents*: "It's not a 'beautiful film,'" Rinzler points out, "but the camera style is a perfect fit with the story. It's gritty and raw. I'm very into being appropriate to the subject matter. I don't want every film to look the same. I want the material to determine the look."

Rinzler's vision of her future includes pursuing projects that she responds to — documentary or feature films that serve a purpose. "I want to stand behind the material and be proud to have my name on it," she concludes. ☙

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Above: ***In Oblivion's hilarious Freud 101 film-within-the-film dream sequence, Nicole (Catherine Keener) is taunted by the symbol of her wedding anxieties (Peter Dinklage). Cinematographer Frank Prinzi let the ludicrous scene speak for itself.*** **Opposite:** ***Earnest filmmaker Nick Reve (Steve Buscemi, hands clasped in anxiety) suffers at the hands of his accident-prone "crew." Prinzi used large, soft sources to suggest that the stage was lit by spill from their hot set.***

DO YOU REMEMBER THE LAST TIME you stood numbly on a set at four o'clock in the morning, pouring questionable milk into an unbelievably bitter cup of coffee and wondering what you were doing with your life? If breathing Rosco smoke or the squeak and clatter of bent dolly track turns your mind towards existential questions, then writer/director Tom DiCillo's *Living in Oblivion* is a movie you won't want to miss.

The absurd and Kafkaesque world of low-budget independent filmmaking, where lights are just as likely to burn or shock their handlers as illuminate a scene, and where one is never burdened with the difficult math of calculating overtime pay, is the backdrop for DiCillo's poison pen ode to the art and craft of getting the shot.

Originally conceived as a short film in the aftermath of DiCillo's first brush with directing an independent feature (1992's *Johnny Suede*), *Living in Oblivion* presents a cagey vision of one director's nightmare. Nick Reve, an earnest and beleaguered auteur (Steve Buscemi), battles every Murphy's law of film production and then some: an inept if well-meaning crew; a leather-clad director of photography named Wolf whose answer for most cinematic problems is to "go handheld"; a saccharine assistant director who sweetly assures Nick, "We're here for you," while conspiring with Wolf to eliminate time-consuming dolly shots; and a talented and fragile actress with whom he is both personally and professionally in love. For Reve, the shooting day becomes something to be survived, and the struggle becomes an uncanny metaphor for any and all human endeavor.

DiCillo's short script was popular with his friends, many of them filmmakers and actors he had worked with over the years. Among the script's most ardent fans was Emmy Award-winning director of photography Frank Prinzi, who was seeking a return to shooting films after several very successful years in television.

Prinzi attended NYU Graduate School during something of a heyday which produced, amongst others, independent luminaries Jim Jarmusch and Spike Lee. After graduating, Prinzi made his way through New York's indie scene like any aspiring filmmaker, taking any job he thought might be "useful." He sharpened his skills by working as an electrician and assistant cameraman, seizing every opportunity to shoot that came his way.

It was on Jim Jarmusch's shoestring classic *Stranger Than Paradise* that Prinzi met then-cinematographer DiCillo and began working as the "gaffer-grip," a title found only in the twilight world of low-budget filmmaking.

"I did the rigs," Prinzi recalls. "I plugged in the lights, I turned them on, I flooded them out, I'd run back and take a reading and make adjustments. It was just me and an occasional helpful production assistant. It was a lot of running around, but it was all part of the learning I was going through then. It was a valuable experience."

Photos by Bill Bettencourt, courtesy of Sony Pictures Classics

A Comedic Nightmare of Errors

Emmy-winning cinematographer Frank Prinzi returns to his low-budget roots with the filmmaking farce *Living in Oblivion*.

by T. Colin Dodd

Prinzi went on to shoot several short films, including Dean Parisot's Oscar-winning short, *The Appointments of Dennis Jennings*, and Cal Skaggs' *Journey Toward Genius*. His career gained momentum as he shot a varied range of features, among them Sara Driver's *Sleepwalk*, *The Suicide Club*, *The Prince of Pennsylvania*, *Tad*, and Tom Savini's color remake of George A. Romero's *Night of the Living Dead*. He even did the New York sequences of John Woo's *A Better Tommorrow II*.

But Prinzi won the most acclaim for his voluminous and elegant work in television. Aside from episodes of *True Blue* and *Gideon Oliver*, Prinzi shot 45 episodes of *Northern Exposure* from 1991-93, earning an Emmy and two other Emmy nominations for Outstanding Cinematography, as well as a 1992 ASC nomination.

"We treated every episode of *Northern Exposure* as if it were a small film," recalls Prinzi. "It was really great, rewarding work, but it kept me fixated on the fact that ultimately, my ambitions rested in shooting movies."

So when DiCillo approached his old friend about shooting the original short version of *Living In Oblivion* in the fall of 1993, it made perfect, if a little skewed, sense for Prinzi -- with an Emmy sitting on his shelf, and the ensuing surplus of TV job offers -- to return to the cinematic nether regions of no-budget filmmaking.

"It's not as if I was turning my back on television, and I certainly have nothing against good budgets and having enough time and equipment and crew to get the job done, but shooting movies, especially small movies that don't have any money, presents a whole new set of problems, and solving those problems has its own rewards."

The first "act" of *Living*

in Oblivion, DiCillo's original short "director's nightmare" story, was shot primarily on 16mm black-and-white negative over five days in November of 1993 in New York City's aptly named Raw Space. The crew was a volunteer mini-army of the New York indie scene's A-list technicians, most of whom were excited to work with Prinzi.

"He had a definite reputation," recalls Howard Davidson, one of three dolly grips on the shoot. "I dressed a little nicer, and made sure to have my act together, and made sure he wasn't disappointed. Everybody wanted to do a great job for him."

To prepare for the first shoot, DiCillo and Prinzi talked the entire movie through, shot for shot, taking great pains to lay plans that would see them through the very tight shooting schedule.

"We holed up in Tom's apartment and for nearly two weeks, from ten in the morning until six or seven at night, we went through the script, and we thought long and hard about every shot," says Prinzi. "We were like two reclusive crazy men, working as hard as possible to make it easier for us when it came to shooting."

The fruits of their labors are most evident in two sequences in which Reve struggles to get through a single-take scene between his leading lady Nicole (Catherine Keener) and her mother (Rica Martens). As each take is thwarted by a frustrating series of technical problems and crew snafus, Nicole's performance steadily degrades and Reve feels his vision slipping away from him. These sequences are essential in creating the anxiety that drives the entire narrative.

The crux of these sequences are the "takes" themselves, shot in color, and intercut with the black-and-white "action" of the fictional film crew executing them. The audience sees both the spectacle of the film set, and the shots as seen through the lens of fictional director of photography Wolf (Dermot Mulroney), drawing them into the process of filmmaking and inviting them to share in Reve's frustration. For it to work, compositions between the color and black-and-white versions of the "takes" had to be carefully matched, the shot-ruining mistakes had to be painstakingly choreographed, and the camera movement had to remain consistent throughout each actual and fictional "take."'

For Prinzi, this amounted to simple, careful photography -- developing a solid workable plan and sticking to it.

"We had discussed things very thoroughly, and we had decided to let our limitations work for us. We agreed that 'ugly' was a very legitimate aesthetic choice for this filmmaker's nightmare."

By "ugly," Prinzi refers to the blown-out grain structure and high contrast of Kodak 7222 Double X Negative stretched nearly to its limits, which contrasted nicely with the "movie-within-the-movie" shots done on the less-taxed Kodak 7245.

"I decided to just light for the story and let the grain take us where it might. All along, we assumed that we would do a blowup, so I concentrated on keeping the image as sharp and well-lit as the story might allow, knowing that the grain of the final print would give things a good nightmare quality.

"By using black-and-white negative, blowing it up, and putting it on color stock for the final release prints, I knew that the image would be battered beyond belief. That goes against the nature of the stock. The trick was in predicting how much and in what way it would degrade, and to shoot accordingly."

No consideration was given to framing the short for video. The entire piece was shot in 1.85:1 straight 16mm, with the ultimate goal of a blowup and 35mm projection in mind.

Although the budget was tiny, Prinzi made no concessions when it came to putting together adequate camera equipment. He used a standard Arri SR package, the only luxury being a set of Zeiss Superspeed Primes, and a seldom-touched Cooke Zoom. No filters were used, since the objective of the first shoot was to render clean sharp images that were ready to fall prey to the degradations of the blowup.

Most of the camera moves were executed on a Chapman Pee Wee II, because "it's quick and easier on the crew. You don't need a lot of sophisticated expensive equipment to get good precise moves. You just need a precise crew." For the "meltdown" scene in which director Reve berates his cast and crew for dolly noise, marijuana-influenced focus-pulling, and perfect performances during rehearsals, Prinzi went handheld.

It was also important to work with professional actors who would collaborate with the stretched crew. There was little room afforded the actors for the carefully choreographed "mistake shots." Prinzi was impressed with the work ethic of the entire cast, and especially Steve Buscemi, who seemingly had an uncanny awareness of what the crew needed from him, while at the same time giving DiCillo everything that he wanted.

Real crew members coached their acting counterparts on the proper and improper use of equipment, how to believably ruin a take with an invading microphone, and how to hold a slate. Says Prinzi, "I think a lot of us got a kick out of seeing how our professions were portrayed. There was a really good feeling on the set. It was terribly hard work, but I think that after the first few days, most of us knew that it was going to be a good, if not great, short film."

After the original five-day shoot went so well, DiCillo couldn't shake the feeling that he had something worth making into a feature, and his suspicions were confirmed as more people saw the finished short film.

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was really good," remembers executive producer Hillary Gilford (who appears in *Oblivion* as the script supervisor). "We encouraged Tom to make it into something more."

DiCillo wrote two more acts, and went looking for money. After shopping it around, gaining only the attention of some producers who wanted to put their own stamp on the film, Gilford and her husband, Michael Griffiths (who plays the sound mixer) decided to produce the feature shoot themselves.

"We wanted to preserve the climate of the first shoot and to keep it Tom's project, completely," says Gilford.

The cast was reassembled, and again Prinzi and DiCillo went through an elaborate preproduction process, mapping their route through the 15-day shoot.

The following summer, nearly seven months after the original shoot, the second part of *Living in Oblivion* was shot, again at Raw Space. This time there was some money for the crew, and a more elaborate grip and electric package, but there was no escaping a tight schedule.

DiCillo and Prinzi agreed to shoot the remainder of the film in 35mm color, again using the inconsistent nature of the production to their advantage. Prinzi settled on Kodak's 5296 for the bulk of the shots and 5245 for the few exteriors. Their aim was to again play on the audience's expectations, this time letting the "more normal" 35 color look take the audience into a "reality" that was never quite what it seemed. To that end they reshot a transitional scene from the short version, in which Buscemi awakens from a nightmare, in 35mm. "We really needed Buscemi to wake up in 35mm, and for that 'shock' to set the tone for what comes later," Prinzi explains.

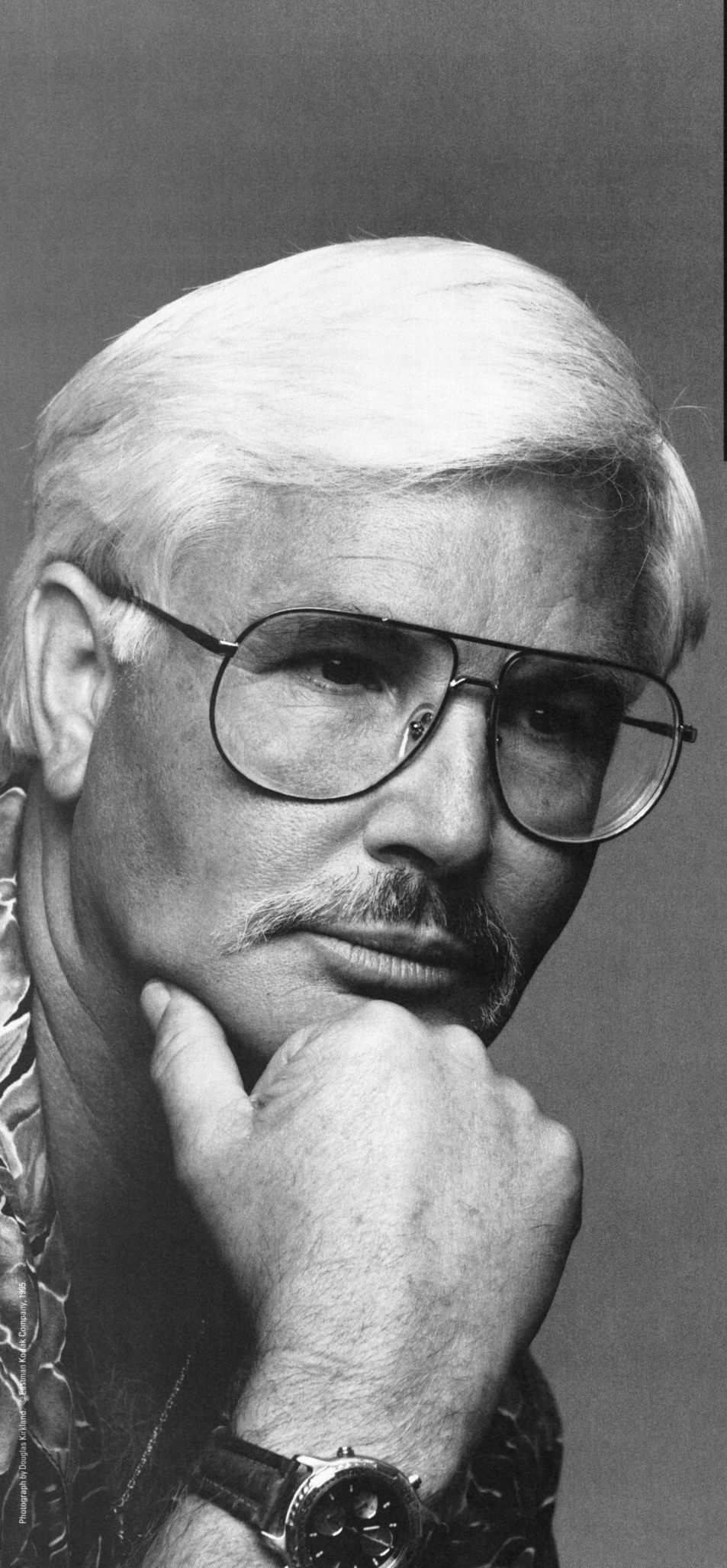
The second time around, Prinzi used an Arri BL4 S, again with Zeiss primes and a largely-untouched Cooke zoom. Prinzi continued to frame everything for 1.85:1. "It was the same approach, this time solely out of consideration that it really would be seen on a screen. I just kept the images as sharp as possible, and any softness came from the lighting."

For the second and third acts of *Living in Oblivion,* DiCillo decided to elaborate on the thematic link between filmmaking, dreams and nightmares. Nicole has her own actor's nightmare, and the story finally ends up in waking reality with the fictional film crew preparing to shoot a dream sequence for a movie also called *Living in Oblivion.* Irony, clichés and self-reflexiveness are in abundance as DiCillo takes pokes at the conventions of the dream sequence. A dwarf in a sky-blue tuxedo and a cruel-looking smoke machine figure prominently.

After taking the audience through two convincing dreams, it was ironically important for the shooting of the shooting of the dream sequence to be depicted as mundanely as possible. To that end, production designer Therese Deprez built a simple two-wall red set with a single, dwarf-sized, *Caligari*-like door, through which a not-so-surreal cloudscape can be seen. Nicole stands in the middle of this room in a wedding dress, as the diminutive symbol of her anxiety, Tito (Peter Dinklage), walks around her with an apple. It's a scene that might make even David Lynch squirm -- for all the wrong reasons.

It's also a scene that belongs to the characters and the set, and Prinzi was careful not to intrude. He shot the "dream" shots wide, slowly creeping in as Tito circles Nicole. He lit the red set with a large soft source, and let the ludicrous blocking speak for itself. For the shots of the crew, Prinzi kept the backgrounds dark, keeping the light motivated by the lit dream set.

Prinzi tried to use the largest, softest sources possible for key lights, using a variety of



TONY ASKINS ASC ON FILM

"I studied fine art at UCLA. I wanted to be a painter. Cinematography is a way to express myself in a different medium. I believe it's an art. Every set has a personality. Sitcoms used to be all high-key. Today, many of them are more realistic with elements of drama. You create pools of bright light, but the most important lamp is the one you shut off. There's an eloquence to darkness. It shines. You help create that feeling by manipulating light and colors. Everyone does it differently. On this show, we drop the level of light in the foreground, and use back crosslight. We put some highlights on the backs of sets for dimensionality. We create sunsets and change the time of day with light. We crafted a slightly warm look. It just feels right. We use dimmers to control individual lamps. It's like playing a musical instrument. We bring individual lights up and down, and turn them on and off, while the cast is moving through long, complex scenes with all three cameras tracking. With today's films, I can pull deep stops in low-key light with hardly any fill. That's important because it gives the actors more freedom to move without slipping out of focus. Every extra inch of depth of field matters when you are using long lenses. I love this work, but someday I'll paint again. It will probably be frustrating, because film gives you the latitude for making more subtle adjustments than oils, acrylics or watercolors."

Tony Askins

Tony Askins is currently shooting *Step By Step*. His credits include *Dynasty II: The Colbys, Hotel, Love Boat, Murder She Wrote, Perfect Strangers* and *Family Matters*.

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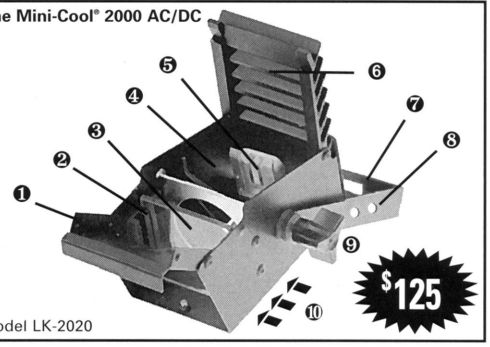

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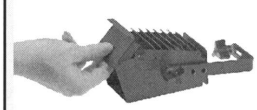
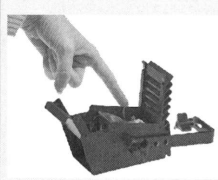


To open, lift the FORWARD LID of the lamp housing.



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fresnels for separation. "We had nine lights, or 2Ks going through frames of various sizes; six-by's, eight-by's, four-by-eights, and four-by's, depending on what we were shooting." Prinzi used Heavy & Light Grid Cloth on the bigger frames, and Lee 216 and Opal on the smaller frames. For close-ups he used Chinese lanterns.

"In general, we wanted the backgrounds to be darker. It was a film set, after all. And to give the stage some depth and perspective we used a lot of practicals, with bare bulbs hidden behind them, or hanging far away in the background and out of focus, just to give a sense of distance."

Throughout both *Living in Oblivion* shoots, Prinzi used DiCillo's story as his creative guide. Narrative problems had to be overcome, not rationalized away, and solving those puzzles kept Prinzi busy. Wider lenses were chosen to give certain characters graphic dominance over others. In a character-driven narrative confined to tight spaces, and very little time for exhaustive coverage, good use of foreground allowed more of the story to be told visually. "You might be able to compose a similar shot with a longer lens, but when you don't have time for lots of coverage, you really have to think and consolidate, and design shots that tell, rather than building meaning through lots of single shots," Prinzi notes.

"Your real enemy on low-budget shoots is the poverty of time. But with good solid preproduction, you can really come up with wonderful solutions. Thinking is free. It's *how* you choose to say something. I like to use the analogy of a poem versus a novel — both can express a great deal; it's just how you get there. It's the economy of expression, and figuring out the best way to help a director tell a story, that really gets me."

During postproduction, Prinzi didn't let the low-budget nature of *Living in Oblivion* dilute

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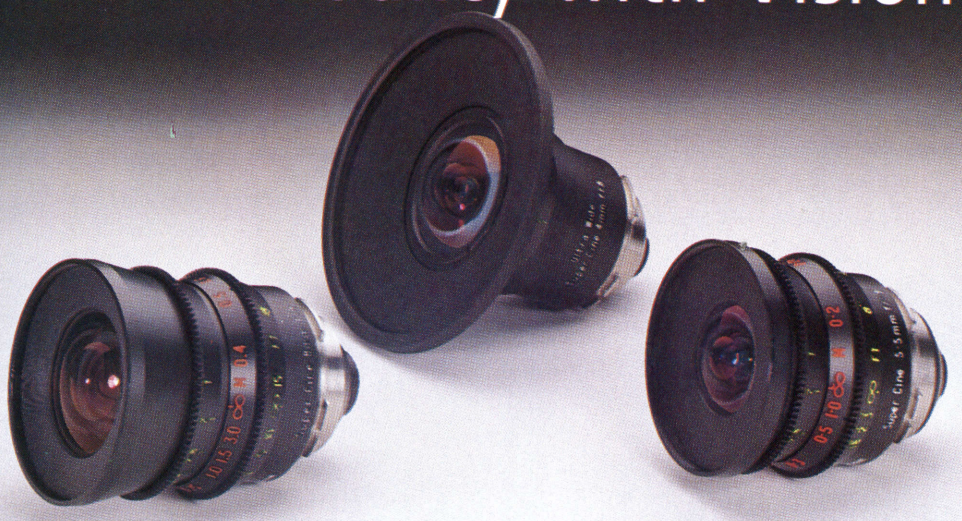

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his commitment to the final print. He enjoyed sitting through all the timing sessions with DiCillo and overseeing the various steps on the way to creating the final negative, composed of four different stocks and two formats. Most of the work was done with Fred Hyde at Technicolor, under the supervision of Joe Violante.

"This kind of post process is something that you don't really get to do in TV, because that's not the nature of the medium," Prinzi relates. "I never considered not being heavily involved in postproduction on *Living in Oblivion*. It's absolutely crucial. If you let someone else time your movie, I think you are nuts. If you're involved, you have the option to move both ways, to pinpoint an exact direction."

Despite the arduous schedule and the lack of creature comforts, Prinzi enjoyed his return to low-budget filmmaking. "It's been a good thing for me. You definitely build strong personal relationships with people, and on low-budget things there is a definite new energy. That new energy is not necessarily better than what goes on in bigger, more smoothly-run productions. It just has a different quality. It's renewing."

Prinzi's appetite for that renewal might be baffling to some. He is currently battling mosquitoes, rain and inhuman humidity on another low-budget feature with the working title *Grave*, which is being shot in the swamps outside of Wilmington, North Carolina. With any luck, Prinzi will look back on his current austere adventure with the same enthusiasm and amusement he has for *Living in Oblivion*.

"It really doesn't make sense, this business," he concludes. "But when Buscemi and his crew finally get a good shot off, they experience real elation, and it's far better than any of the bad things that they go through in that movie. That's my favorite part."

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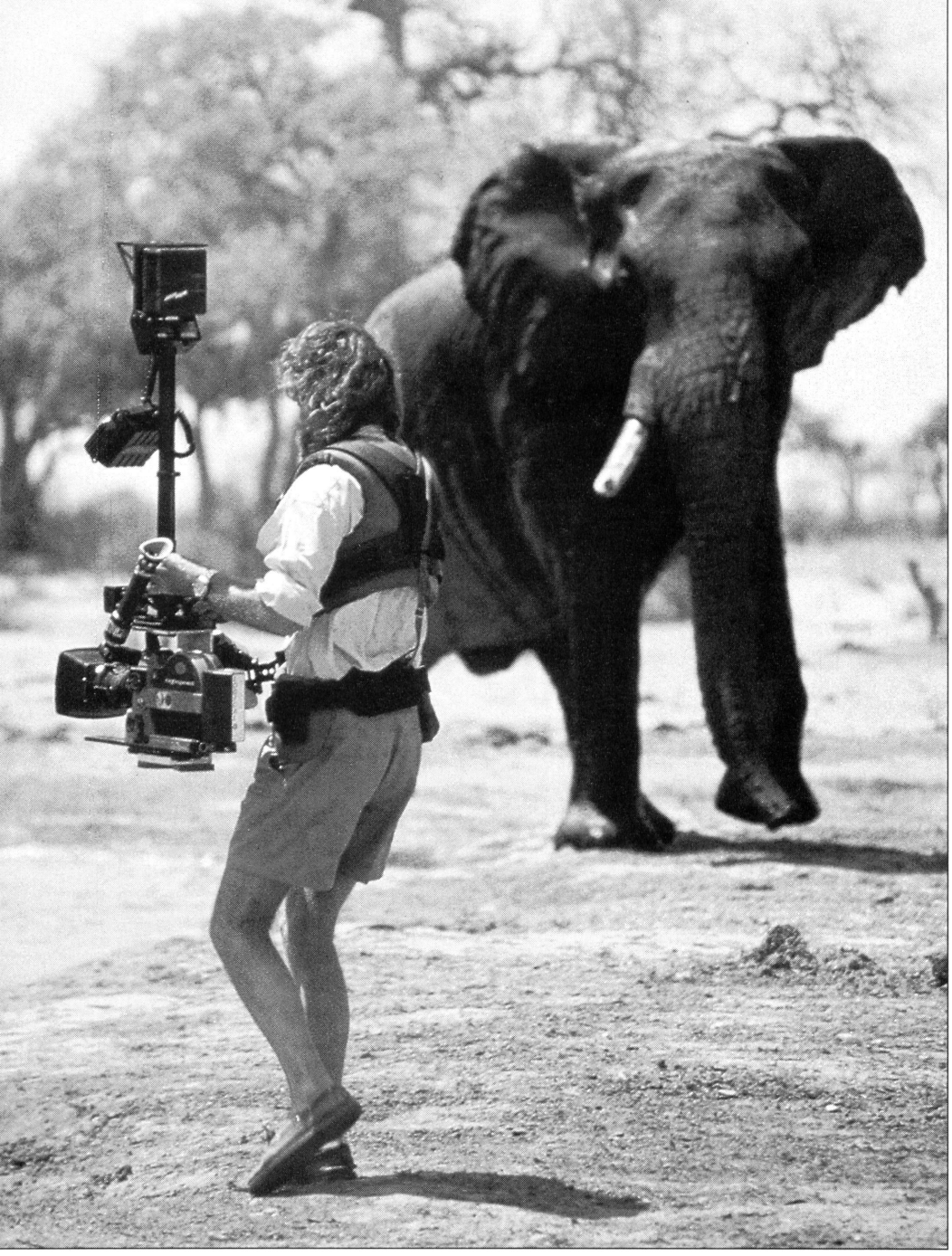


Photos by Dereck Joubert and Jenny Song, courtesy of National Geographic Television

Living Life by the Laws of the Jungle

Veteran National Geographic documentarians Dereck and Beverly Joubert have fused their life with their work, capturing the intricate rituals of Africa's wild animals.

by Jean Oppenheimer

The young zebra stands motionless, her eyes wide with terror, as the lionesses slowly close in on her. She turns frantically, searching for a break in the circle, but is hemmed in on all sides.

Dereck Joubert waits for the kill, jumps out of his truck and quickly walks up to the feasting cats. Sidestepping their tails, he sets up his tripod and, with practiced precision, places his Arri SR High Speed on top of it. He has five to eight minutes to get his shots and return to the safety of his vehicle. Once the carcass starts breaking up, the lions will get bored and begin looking around.

"It's tricky. You really have to read the situation well," concedes Joubert who, along with his wife Beverly, is a legend in the world of wildlife cinematography. Their work includes eight National Geographic television specials and *Explorer* programs, including the Emmy Award-winning *Eternal Enemies: Lions and Hyenas* and this year's Peabody Award-winner *Reflections of Elephants*. For the past 14 years, the South African-born couple has lived in the Chobe National Park, situated in the remote northern region of Botswana. Even by documentary filmmaking standards, they lead a spartan existence. Home is three 12' x 16' tents nestled among a thicket of trees on what was once an island in the Chobe River. Years of drought have taken their toll, leaving a dry river bed which affords little protection from marauding animals or humans.

On a recent, rare visit to Los Angeles to celebrate National Geographic Television's 30th anniversary and to promote its move to NBC after 20 years at PBS, the Jouberts talked about their filmmaking methods. Their comments provide a textbook for anyone interested in shooting nature documentaries.

"A lot of our stuff is very opportunistic, as action breaks toward or away from us," says Dereck, describing their technique with characteristic under-

statement. "So we need to be able to grab the camera and start shooting. Our vehicle was manufactured with built-in camera boxes, so if I see a situation developing I can flip open a box, pull out a camera, mount it and be shooting within five or six seconds."

Most of their work so far has been with the Arri High Speed, due mainly to ease of handling. Two years ago they switched from Regular to Super 16, in order to accommodate HDTV (high-definition television). In an effort to obtain even higher picture quality — and as a prelude to shooting a feature in 35mm — they recently experimented with an Aaton 35. "We fell in love with it," enthuses Dereck, "partially because it's quiet compared to the [non-blimped] Arri cameras, but mainly due to its compact, coaxial, clip-on magazines. If I run out of film all I need to do is clip on another magazine and carry on. I can lose opportunities by having to re-lace a camera in the field."

Although camera heads are mounted where the doors would normally be on either side of their custom Toyota Land Cruiser, Dereck prefers to move away from the vehicle and set up a tripod on the ground. Not only does this enable him to get closer to the action but, more importantly during night shoots, it puts some distance between the camera and his lights, which are mounted on another tripod on the vehicle. Otherwise, such close proximity of camera and lights results in a flat, front illumination. Whenever possible Joubert tries to set up the camera at a 90-degree angle from the lights.

Regardless of where the camera is set up, it is always mounted on a head, and never handheld. Dereck is adamant that every shot be steady and exposed correctly. "If I've got a camera on my shoulder when the action starts to happen and I don't have time to mount the camera on a tripod, I let it go. I'll let it happen again and get the scene properly."

The one exception to this rule is the Jouberts' film-in-progress on poachers (now being edited), which required them to conduct what amounted to surveillance coverage, almost always under cover of darkness. The catch-as-catch-can nature of the project often made setting up a tripod impossible. Furthermore, because the use of lights would obviously alert the poachers to their presence, Dereck used an image intensifier which electronically enhanced the visuals, turning them a sort of green monochrome.

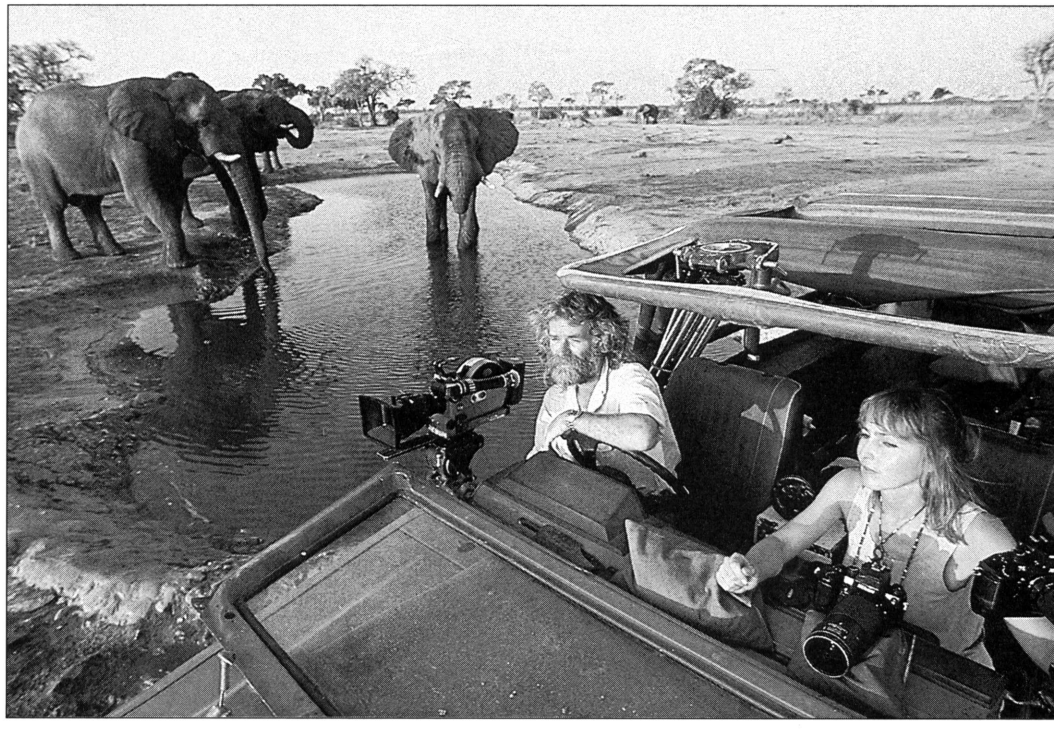
Ardent conservationists, the Jouberts are making their latest film in an effort to expose the wholesale slaughter going on at the hands of poachers. By showing the magnitude of the problem, they hope the citizens of Africa will demand greater action against the illegal hunters. Both the military and governments of many nations have already taken steps to address the issue, though not always in a positive direction.

"In most countries, it's the military who is poaching," says Beverly. "The government in Botswana is unique in that it allowed the military in to try and stop the butchery." Well aware of the Jouberts' project, the poachers have put a price on their heads. In Africa, human enemies can pose a far greater threat than animals.

While cinematography is Dereck's province, sound, lighting and still photography are Beverly's; her photographs fill the pages of *National Geographic* magazine. She began her career while working on one of their early projects, *The Stolen River*, which documented the drying up of the Savuti Channel during Botswana's extended drought. Beverly decided to capture the historical event in stills, as well as on motion picture film.

Every noise heard in the Jouberts' documentaries is a production sound, although it is usually recorded wild. "We haven't time to put out a clapper board," says Beverly with a laugh, "and sometimes we are so close to each other that I would pick up the sound of the camera anyway." She uses a Nagra 4.2 and a 416 Sennheiser microphone which, whenever possible, rests against a sandbag near the animals. At times she substitutes a shotgun mike; booms, however, prove too disturbing to the animals.

In such instances as



Opposite: ***Dereck Joubert, though usually adamant about keeping his camera on a head, utilized a low-made Steadicam to capture the death of an old bull elephant.***
Below: ***Dereck and Beverly Joubert cruise the African savanna in their heavily-modified, camera-friendly Toyota truck.***

In addition to capturing her subjects in stills for **National Geographic** *magazine, Beverly records wild sound for later unification with Dereck's Super 16 footage. Slated takes are impossible for obvious reasons.*

Dereck filming a lion kill, one of Beverly's most important tasks is keeping an eye on animal action around him, to make sure that none of the pride has drifted off or is charging in from behind. During night shoots, she continually scans the bush with a spotlight to see if anything is approaching. Though lights don't seem to frighten or disturb the animals that are accustomed to the Jouberts' presence, the combination of light, vehicle and noise can distract them. Ironically, this is a response the Jouberts carefully cultivate despite the dangers.

"If we find a pride of lions or hyenas we haven't seen before, it will take three or four weeks before we can roll a frame of film," explains Dereck. "The whole idea is to have natural behavior that is totally oblivious of any intrusion by man. To get that we have to slowly break down any resistance or curiosity they might have to us or to the lights. We move the vehicle up to them and use a flashlight, then the car headlights, and finally the spotlight. We also move the vehicle around until they get used to that. In time we can switch on the lights or move the vehicle or turn on the camera and they still ignore us, as if we were a tree or an elephant."

While a full moon would seem to provide ideal lighting for filming, the Jouberts presented a scientific paper detailing that in fact, lions don't hunt well in the bright moonlight; they need the cover of darkness — or at least a half moon — to keep them from being spotted by their prey.

Lighting actually presents a major problem for the filmmakers, who have found that necessity is indeed the mother of invention. They first tried Italian-made tungsten lights called Red Heads — similar to the Omni lights favored in the U.S. — but found they didn't produce a strong enough throw.

"Instead, we adapted some lights from Boeing Aircraft, which are used as landing lights," says Dereck. "We use two of them at once, which gives us 600 watts of power. This gives us a fairly even, soft light; much of our work is done at night with nothing to bounce off — it's just black African night. The Boeing setup throws the light about 30 feet, so every piece of action has to happen within 30 feet of us."

The lights are powered from Alcad battery packs which can run for about 2 ½ hours. Specially fitted into containers on their truck, the huge batteries take up half the vehicle and are not intended to be removed, so it is impossible to switch over battery packs. Once back at base camp they are charged on a generator, but this leaves the Jouberts with only one set of lights to use every time they go out.

"Alcad batteries are used in underground mines to give light," explains Dereck. "Like Nicads, which they resemble, their drop-off curve is very flat. With normal lead-acid batteries, the minute you switch them on they start losing power and they keep on losing power. And with that gradual loss of power you can never tell when the lights are going. With the Alcads, however, as you switch them on there's a slight drop, and then they stay level until they go flat and disappear. That's very handy, because you have lights — and it's pure light, a good 3200° Kelvin or whatever — until they go, and then they go in five minutes."

Turning on the lights has a very unpleasant side effect: insects. This is especially true during the summer months, when they attract a particularly noxious bug called the blister beetle. "It gets onto your body," says Beverly, "and releases a formaldehyde solution [as a defense mechanism]. This causes a blister which becomes contagious if you touch your body anywhere."

In 120° Fahrenheit heat, however, it's simply too hot to wear protective clothing, such as long-sleeved shirts and pants. "With overalls they get trapped inside, anyway," continues Beverly. "It's better to be in shorts and a t-shirt and hope they don't get squashed."

The extreme heat of the day — and the cold at night — also poses problems for film stock. Dereck uses Kodak 7245 during the day and 7298 at night, while Beverly prefers Fuji for her Nikon still camera. She says the Fuji's rating of 50 ASA produces wonderful color in daylight; occasionally she'll switch to 100. At night she tends toward 400 ASA if something is really in the distance, but finds that the resulting pictures turn out quite grainy. Instead of turning on lights, which can sometimes interfere with what's happening, she uses a flash.

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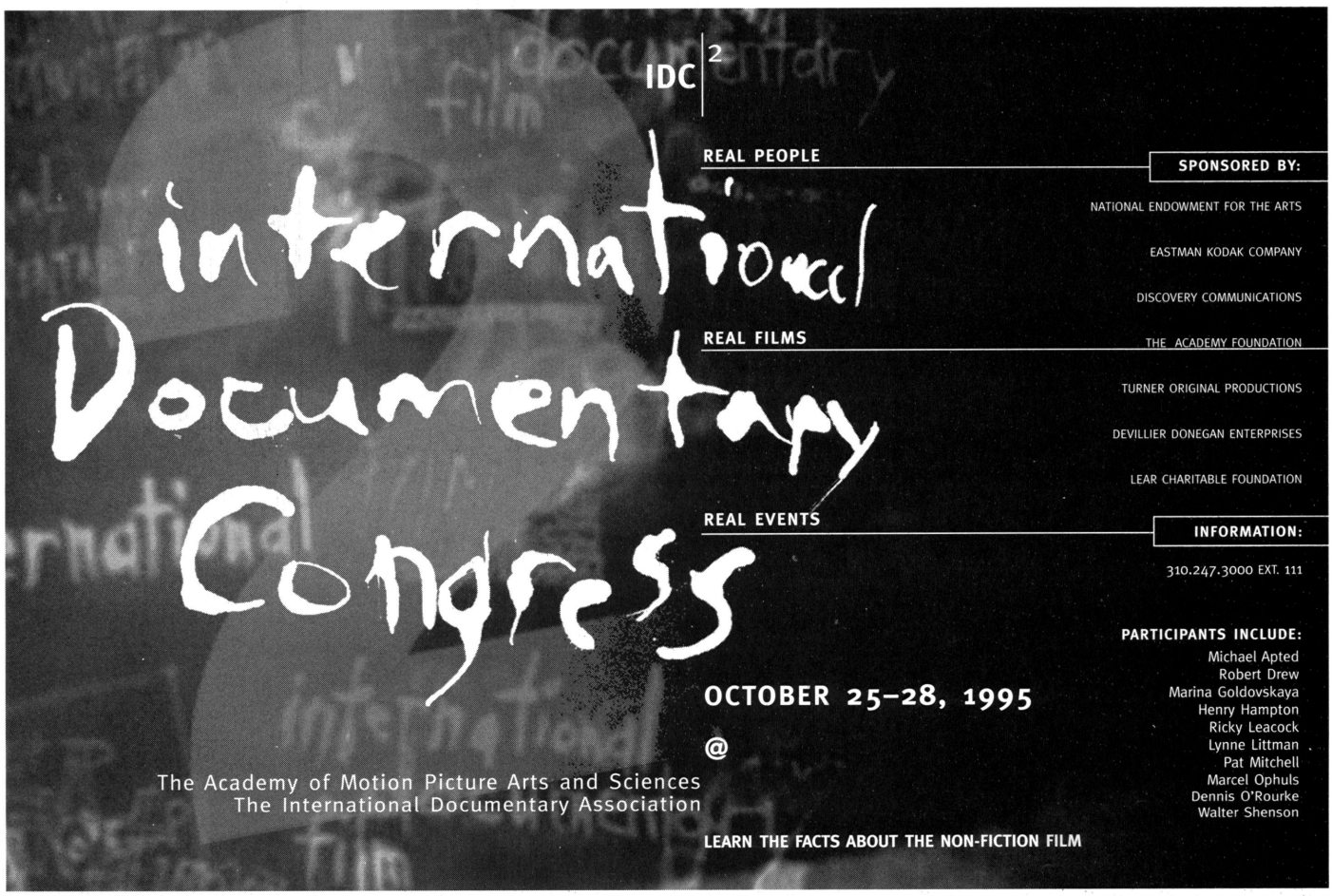

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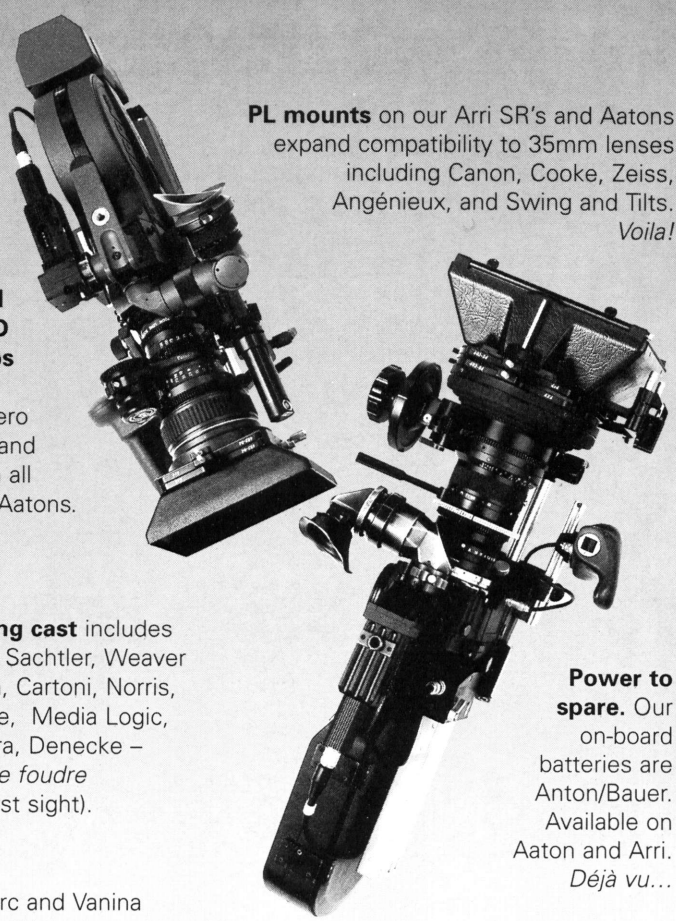

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from the United States and developed in London. And due to their remote location, the Jouberts contend with an eight-week turnaround time for film to be processed. However, because trips to the nearest town are infrequent (it's a seven-hour drive), some way must be found to preserve the film until it can be dropped off. The danger to it is heightened by the extreme variations in temperature across the region. On winter nights the mercury drops to below freezing, and during the day it can get up to 80° Fahrenheit. The summers go from daytime highs of 125° down to about 65°F at night.

The Jouberts' novel solution to this storage dilemma is to place the film in a canvas bag and bury it at least four inches below the surface of the ground. Even at that minimum depth, the temperature tends to be more constant under the insulating soil.

Seasonal changes also cause headaches for the filmmakers. During the rainy season — from November through April — the roads turn into mud. The Jouberts have been stranded for as long as 26 hours, trying to extricate their truck. In contrast, the dry season — from May through October — gets incredibly dusty and the camera gear requires extra pampering. "We cover it as much as possible," says Dereck, "and often use Stay Soft, a product which takes static out of clothes. We spray it on the camera to get all the static out; otherwise we'd get hairs in the gate all the way down."

In addition, tsetse flies emerge in force during the summer, biting constantly and making it difficult to shoot.

After making two films for British television, one for Channel 4 and the other for the BBC, the Jouberts hooked up with the National Geographic Society in the mid-1980s. The Washington D.C.-based organization is the largest non-profit scientific and educational institution in the world. They became

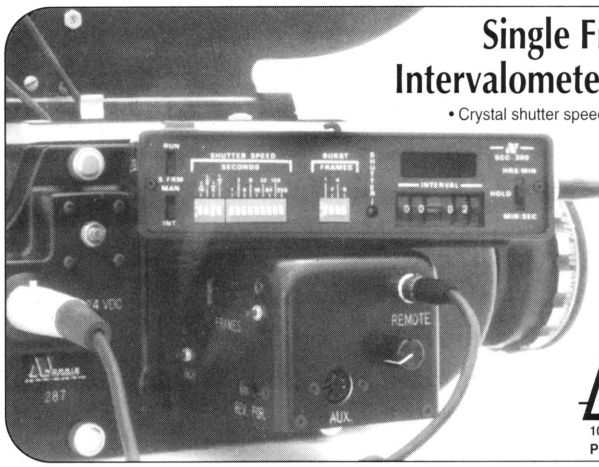
aware of the Jouberts' work at wildlife film festivals, and asked whether the couple would like to do their third film for the Society. The Jouberts jumped at the chance. "National Geographic came to our rescue," laughs Beverly. "We don't have to deal with the Brits anymore."

The problem was one of efficiency rather than funding, since the budgets didn't change radically. Beverly clarifies, "In Britain the unions would say, 'This transfer is going to take two weeks.' In the U.S. it's done overnight."

"The great thing about working with National Geographic," specifies Dereck, "is that it's a solid institution with enormous credibility." By way of example he points to a recent instance in which the couple wanted to film inside the Ivory Storeroom at Botswana's Wildlife Department, which contains 12 tons of poached or picked-up ivory. "If you approach them and say 'I'm with station XYZ from somewhere in Europe,' they'll say 'No, go away.' If you say 'I'm with National Geographic; I'd like to get in,' they ask, 'What time would you like to be there?'"

The Jouberts' output for National Geographic's television programs includes films on lions, zebras, hyenas, elephants, and the African region itself. Among their works are *Journey to the Forgotten River* (1990), *Patterns in the Grass* (1991), and *Lions of Darkness* (1994). The filmmakers take special pains to point out that they film events exactly as they unfold and that they, as observers, never influence the situations they shoot. They will leave a scene rather than risk interfering with the evolving event.

Their ratio of shooting-to-usage averages out to about 25 to 1, although they hold onto every frame in case it might be used in a later project. "We might be out there every single day," says Beverly, "but that doesn't mean we're shooting every minute of the day. We may only shoot five



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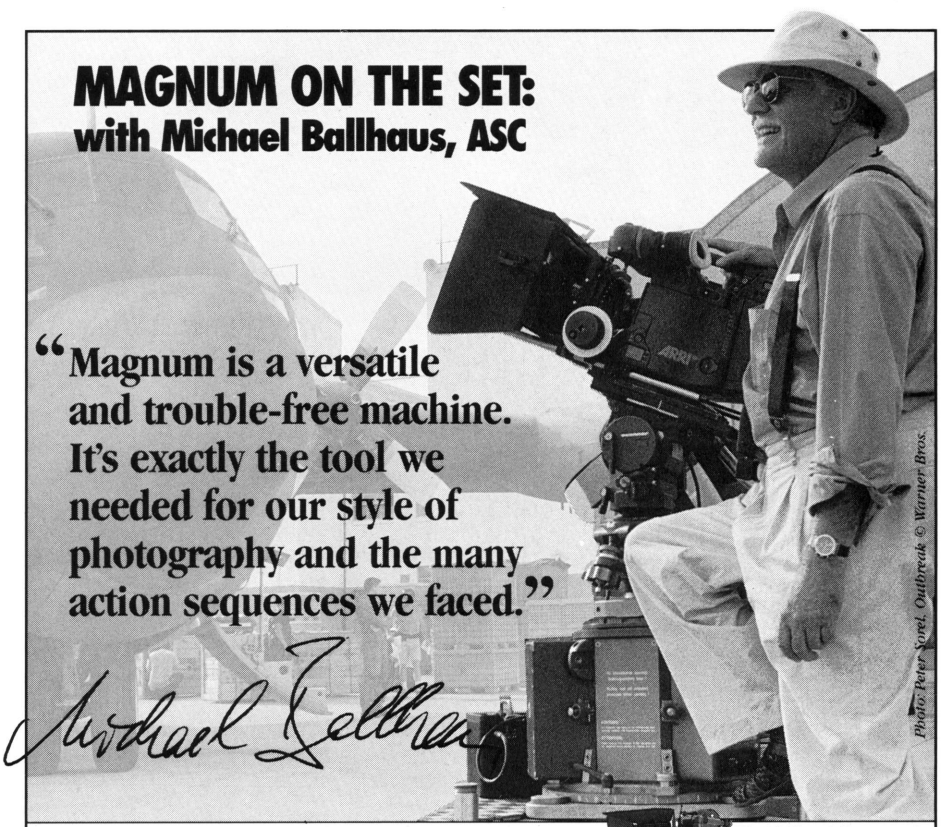

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Michael Ballhaus & Magnum on the set of *Outbreak* from Warner Bros.

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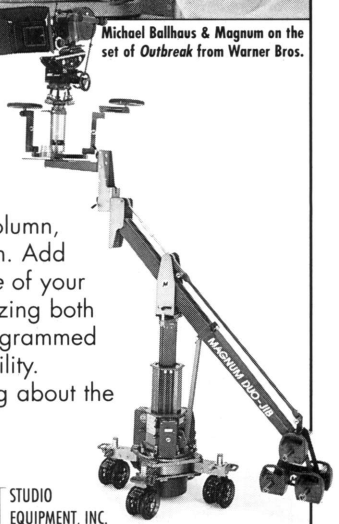

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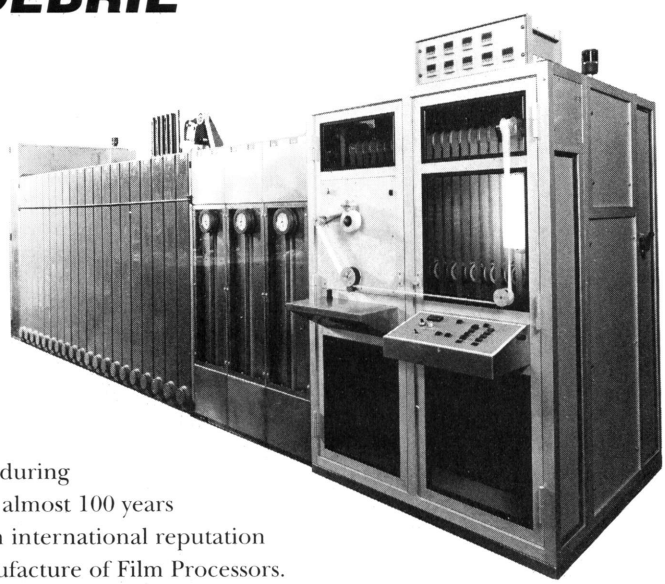

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minutes one day and get lucky and shoot two hours the next."

They have worked with the same pride of lions for 14 years and know them well. "If we see one lion walk out of the bush, we know him like we'd know a person around us," says Dereck, who speaks of individual lions by the first names he and Beverly have bestowed upon them. That doesn't mean they step out of their vehicle and pet the beasts, although the lions recognize the truck and frequently trot up to it, sniffing at Dereck and Beverly's knees.

According to Dereck, understanding animal behavior is the key to wildlife filmmaking. "It's anticipating animal behavior that makes you successful at this job, knowing it well enough to read a situation and avoid any possible danger."

Still, even these veteran documentarians get scenes they never anticipated, such as the ritualistic mourning of a dead bull elephant by other members of the herd (in *Reflections of Elephants*), or a cobra attacking a female lion and her cubs (in *Eternal Enemies*).

Reflections of Elephants follows a single herd as it traverses the country on its never-ending quest for water. The remarkable footage includes the herd's rescue and adoption of a baby elephant which has been abandoned by its own herd, and the later rescue of that same calf when he gets stuck in a mudhole. One of the film's most moving sequences is the death of the old bull elephant. Despite his penchant for tripods, Dereck chose to record the event with a Steadicam.

"We could have done a straight pan as he walked past us," he recalls, "but I really wanted to create some sort of emotional attachment to this old guy as he's dying. And I wanted to have the audience feel very much as if they were with him, moving along with him. The Steadicam helped us go along on that journey with him, and to get closer emotionally and visually to him."

For Beverly, watching nature run its course is the hardest part of the work, especially when the process involves an animal they have known and loved. Several weeks before their trip to Los Angeles they watched Motsumi, a lioness they had followed since she was a cub, fade away and die. Beverly's voice catches when she speaks of the incident; Dereck is more stoic, but he still speaks movingly of the creatures he lives amongst. "Animals have emotion, they have language, they have all the things we have always held to be exclusively ours," he says. "There's only one distinction: man is the only animal that kills for pleasure."

As with its more equatorial neighbors, the northern region of Botswana — situated just six degrees north of the Tropic of Cancer — experiences accelerated sunrises and sunsets (along the equator, they are almost surrealistically abbreviated). "Magic hour," nature's wondrous gift to the cinematographer, proves equally evanescent.

"I use filters from time to time," says Dereck, "just before 'magic hour' and just after, to try and extend it just a little. There's a three-piece Tiffen sunset filter set, going from a quite bright sunset to quite subtle. I tend to use the more subtle number one, just to get a little bit more out of it than is there."

The filter is about the only artificial boost the Jouberts are willing to employ, for when it comes to documenting life in the wild, they are near-absolute purists. Although Dereck prefers to get close to the action, rather than using a long lens, it isn't always possible. When opting for a telephoto, he favors both the Canon 300 and 600mm primes. He seldom zooms during a shot, but he frequently has the Zeiss 10-100mm lens on his camera. "I view it as a variable-length lens," he explains. "Many of our situations involve action, and if I were clipping lenses on and off all the time I would miss the scene."

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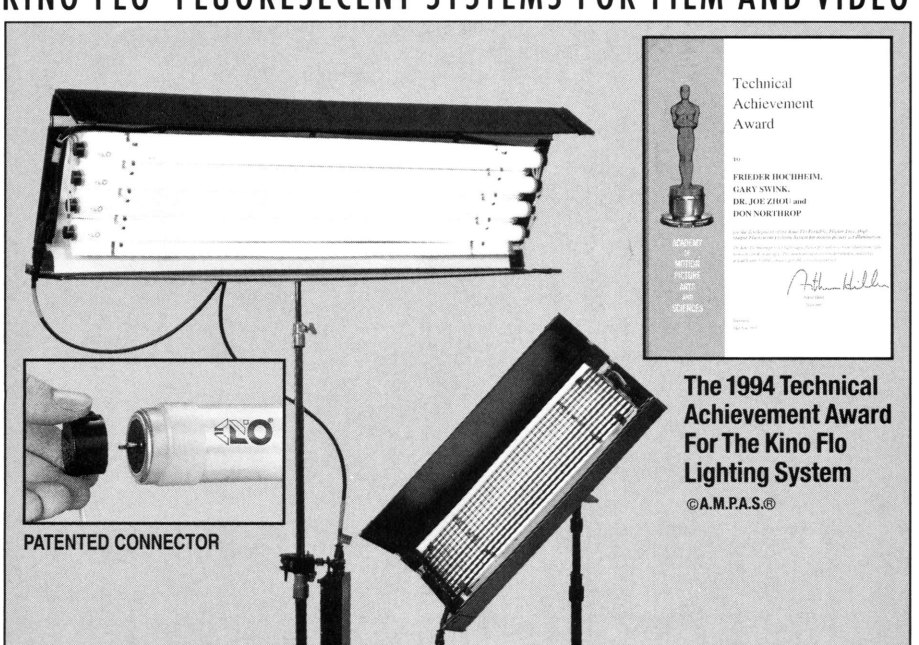

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Each film takes the Jouberts three to four years to complete, including the writing, producing, shooting and editing. Although the Jouberts do their final edit and mix in Washington, D.C., they have a Steenbeck set up in one of their tents on location. "I'm building all the time — building scenes, cutting scenes together, planning how the film is going to work out," says Dereck. "The real advantage to our editing out in the field is that if we have a scene that is going to work [with the addition of] one more shot, we can just go out and get it. It also helps us to get in touch with what we are trying to say. You can plan these things in your head, but it helps to really get your fingers on the film and see it it's going to work."

The "civilized" world offers few inducements to the Jouberts, save perhaps a luxurious hot bath, and they spend every moment they can in the bush. Their lifestyle can be dangerous. The couple was once charged by a bull elephant, but they stood their ground; the huge beast skidded to a halt two feet from them, bellowed and turned away. But their work also has its lighter moments as well.

"Early on we decided to put out a second camera at a kill, on remote control," says Beverly, laughing. "A lioness heard the purring of the camera, pounced on it, bit into the wooden tripod leg and ran off with it — the camera and the battery. We had to go through a tug of war to get it back. At one point, Dereck told me to grab the leg, but I said, 'Forget it'. So he had to do it.

"A second time, it wasn't a camera that was kidnapped, but something just as precious to us: our fresh vegetables. They were in a bag and fell out of the vehicle. We had to get them back."

And did they? "We did," says Dereck proudly. "We are very determined filmmakers."

Perspective on Perfection

by Mary Hardesty

When director Simon West brought on cinematographer Daniel Pearl to shoot the Chic Jeans "Nobody's Perfect" spot, he knew he somehow wanted to exaggerate the idea of the leggy model as the perfect woman, so tests were done to determine whether to use anamorphic lenses or to create the effect using the telecine process.

"The difference was extremely subtle," explains Pearl, "but Simon is a director with a lot of integrity, and he chose to use optics, which cost more but really look better, and the Chic Jeans people were very accommodating." The cinematographer's award-winning career includes commercials for AT&T, Campbell's Soup, Chrysler, L.A. Gear and Miller Beer, as well as music videos for Garth Brooks, Michael Bolton, Bon Jovi, Guns N' Roses, Michael Jackson, The Police and Wham.

Pearl's initial inclination was to go with a Panavision camera, but when he found there were no anamorphic lenses available, he switched to an Arri 35 III. The change proved to be fortuitous; had it not happened, Pearl and his assistant Nick Infield may never have discovered a way to use the anamorphic lens while dutching the camera.

"If we used an anamorphic lens, as soon as we put the camera at an angle it would make the models appear short and squatty — exactly the opposite look the director wanted to achieve," explains the 25-year veteran cinematographer, who has shot numerous low-budget features, as well as several music videos using anamorphic lenses to achieve a slenderized look.

The problem was brought to his attention when he was first told about a scene where a model was to be lifted horizontally out of a tank in a futuristic factory that manufactured perfect women.

At first Pearl sent Infield off to look for a Kish Optics Mesmerizer to be placed in front of the camera to achieve an anamorphic look using a normal lens.

"The problem with the Mesmerizer was that it wouldn't allow us to go very wide, and Simon wanted to use extremely wide lenses," says Pearl. They solved the dilemma of how to rotate the lens 90 degrees without making the model look squashed with a simple trick: they asked the technicians at Clairmont Camera to pull a pin inside the camera which holds the anamorphisizing element so that Pearl would be able to kick the camera over sideways and rotate the element to match any camera angle.

"For regular feature film shooting, if this element was anything other than straight up and down, it would be a mess," explains Pearl. "Because the lens freely slipped inside the mount, we had to do all our adjustments by eye, but once we started to play, we found we didn't have to lock the shot down. There's a shot in the spot where we're actually rotating the lens rapidly while shooting, and the anamorphic look is intact."

Pearl again drew from his past experiences in music videos when it came to lighting both the El Segundo, California oil refinery "futuristic plant" set and the Arizona desert finalé scene that shows four beautiful women of different shapes and sizes driving off into the sunset looking great in their Chic Jeans.

"My gaffer Jim Bogard and I had the idea to add flashes of lightning to make the factory environment more exciting," says Pearl. "Normally, lightning strikes are blue, but we wanted to turn them a golden color so it wouldn't look so obvious. We used a Lee 236 gel. Most cameramen use CTOs to turn HMIs around, but this one Lee has a magenta quality built into it, so you don't have to use multiple layers. To accent the scene we wanted heavy blue saturation and narrow strips of light to hit some of the pipes in the shot, so I chose Lee 132

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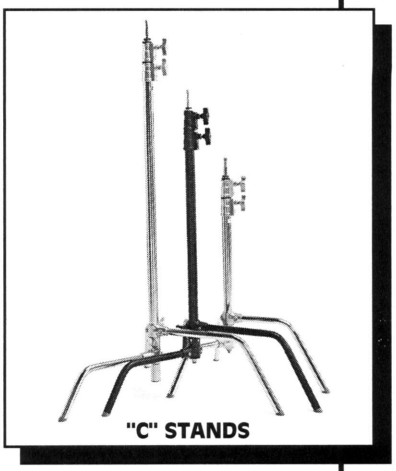

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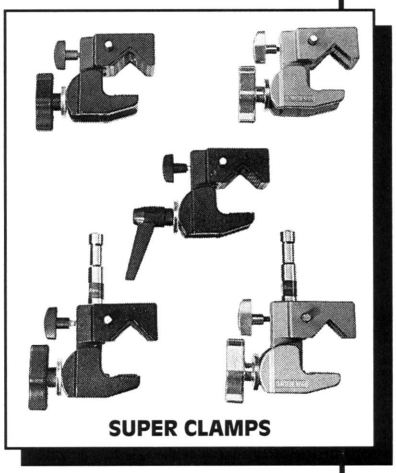

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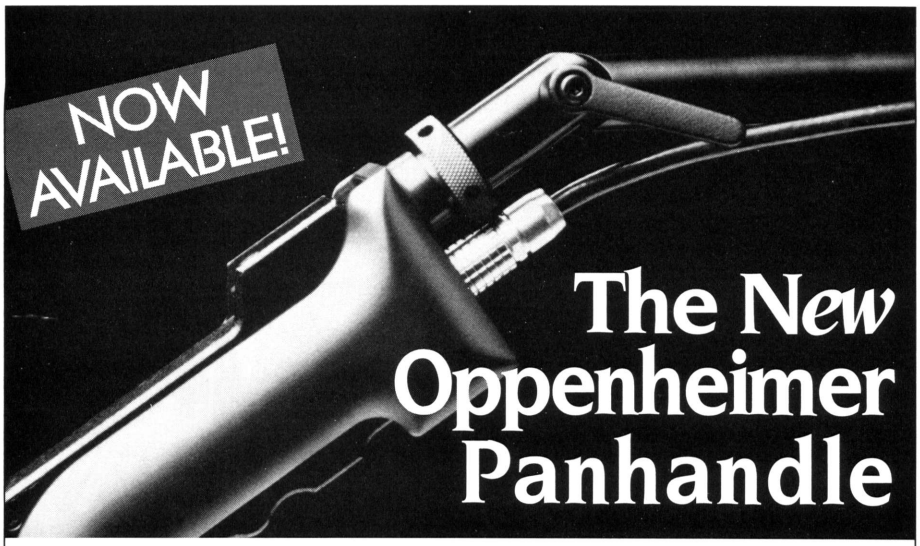

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medium blue filters. The problem with that is they only transmit six percent of the light that's put out, so we needed to find bright controllable lights." Pearl ended up using aircraft landing lights, which are frequently used to shaft light in music videos.

"The other thing we did was to light the long conveyor belt set with pools of light so the viewer can feel the motion as the models are moving along the belt," says Pearl, who hid numerous 1K Leiko theatrical lights in the pipes overhead. "Leikos can get a very sharp edge, so I diffuse them by putting light diffusion material on so they don't feel like follow spots," adds Pearl, who switched to raw tungston key lights for the Arizona location part of the shoot in order to get a warmer feeling.

For the two-day desert shoot, Pearl used his preferred day exterior stock (Kodak 5245 as principal and 5293 for low-light situations), and for the refinery location night shoot Pearl again turned to 93, which he used in a high-speed Photosonics camera running at 2500 frames per second to capture the dramatic explosion of a large hourglass.

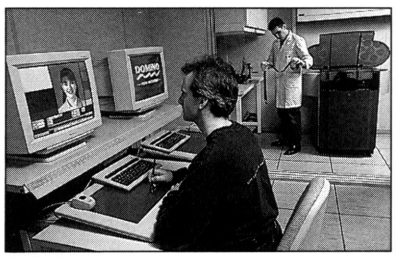
"Our director was very adamant that we shoot the hourglass explosion at as high a speed as possible, but this makes for some technical difficulties," points out Pearl, who utilized four cameras at different shutter speeds to capture the needed imagery.

"When you shoot at 2500 fps, the film is moving through the gate at over 100 mph, so any malfunction can be dangerous — especially doing it in conjunction with special effects."

The entire project was shot with Zeiss and the Clairemont anamorphic primes, an unusal decision for Pearl. Asked about his experience shooting completely with primes, he replies, "I liked it quite a bit, but it takes a director with a very clear vision to make it practical."

Credits:
Client: Chic Jeans
Cinematographer: Daniel Pearl
Director: Simon West
Producer: Leora Glass
Production company: Satellite Films

compiled by Marji Rhea



Quantel Revs Up Domino

Quantel has added to its Domino digital effects system the FST (Fastest System in Town) option, which delivers a tenfold power boost and allows film clips and computer-generated images to be ported directly between a Domino and an SGI terminal in less than 10 seconds.

The Image Card, Quantel's most powerful piece of dedicated hardware, contains more imaging power than a supercomputer and reduces compositing times at full film resolution to seconds.

The Clip Desk feature is an on-screen area where the operator can gather all the clips of work in progress and have them instantly available for action. There's also a new range of effects which include keyframeable color grading, grain management, and multi-point ALF tracking, enabling interactive multi-layer composites with instant full-resolution results.

The CGI interface is a two-way partnership that allows digital film clips and computer-generated images to be ported directly between Domino and computer graphics equipment. Film clips requiring specific 3-D computer graphics work can be exported directly to a CG workstation. Conversely, computer-generated creations can be taken into Domino and composited into live-action footage.

Quantel, (203) 656-3100.

Panavision/Frazier Lens System

The Panavision/Frazier Lens System, developed by wildlife cameraman Jim Frazier, offers a depth of field from 1:1 magnification to infinity, and a swivel tip that eliminates the physical problems of shooting from awkward angles and unusual perspectives. Any desired dutch shot can be achieved in five seconds without moving the camera; instead, the user can dutch or rotate the image in the lens — motorized rotation and controlled speed allows a full 360-degree rotation in axis. Added to this is a range of seven interchangeable focal-length lenses, from 12mm through 35mm (effectively), including two perspective-control slant lenses and a perspective-control lens.

The long reach of the system makes possible any shooting angle from ground, tabletop or other difficult POV. Whatever the camera position, even lying down on its side, the user can rotate the image until it appears dead level in the viewfinder.

For extreme depth of field, the lens needs to be stopped down to f16 to f22 through use of stronger lighting and/or faster film. However, this is not always necessary, depending on the foreground magnification.

Using the PC slant focus lenses, extreme depth of field can be achieved without drastically stopping down the lens, because a tilted plane of sharp focus can be selected. For gaining a "depthy" look, the wider-angle lenses are best used. When using longer lenses, it may be necessary to back off the foreground a little, but without much loss of effect.

Panavision, (818) 881-1702, (800) 367-7262.

Arri 435 High-Speed MOS Camera and Video Viewing System

The Arriflex 435 35mm MOS Camera features a high-quality viewing system and precision movement and is compatible with many Arriflex 535 system accessories and components, as well as with widely available magazines from previous Arriflex cameras, the 35-3 and the 2C. The 435 adapts easily for Super 35 format and is capable of high-speed operation to 150 frames per second.

A mechanically-adjustable shutter is standard in the Arriflex 435. Options include an electronically-adjustable shutter, ArriGlow frame illumination, a 100% video finder for remote applications, and time code capability. In its standard configuration without mag or lens, the Arriflex weighs only 14.3 pounds.

The new Video Viewing System, based on the Vidiflex system from Cinema Products Corporation, provides a high-resolution video image achieved by the replacement of the ground glass with a coherent fiber-optic bundle. The fiber bundle tapers down the original image, picked up at the reflex image plane, and projects it onto a high-resolution CCD chip. The fiber bundles' co-planar feature ensures that there is no loss in quality when reflecting an image in a different surface.

The CCD camera is equipped with frame storage to eliminate the flicker originated by the movement of the mirror shutter. The CCD camera also includes a frame-line generator that enables superimposition of selected illuminated frame-line markings upon the video image for various film formats.

Arriflex Corporation, (914) 353-1400, FAX (914) 425-1250.

Image Compositing for Macs

Ultimatte Corporation's Ultimatte image compositing software tool for Macintosh runs on Adobe Premiere 4.0 or higher and offers a total of 39 controls, seven of which are for matte manipulation. The Ultimatte Intelligence feature automatically matches the colors in the foreground and background video clips. This allows automatic adjustments to take place between different elements of the video tracks being used. Color conformance along with Ultimatte Intelligence allows the user to select whites and blacks and automatically adjusts the controls.

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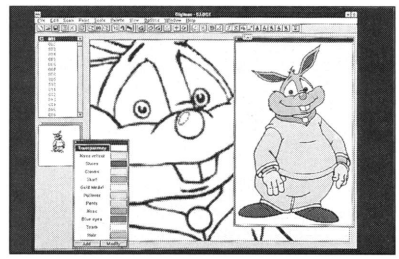
Other features include zoom/pan capabilities to see especially fine detail in the edges; a wipe tool that allows the user to see the previous adjustment and the current adjustment; one level of undo that allows the user to back out of previous control activity; and an RGB readout of what is taking place.

Ultimatte Corporation, 20554 Plummer St., Chatsworth, CA 91311, (818) 993-8007, FAX (818 993-3762).



Digital Cartoon System, Upgraded Graphics Suite

Getris Images' Digitoon digital cartoon computer system offers an open-architecture, PC-based system that can be accessed by many artists, whether they're in the next cubicle or on the other side of the globe. Digitoon is modular, and mirrors the workstation philosophy of generating conventional cartoons. However, each individual artist has access to the same materials for all of the production steps. The program can also be easily integrated into all types of network. Many of the features in the three-part system are automatically run, reducing the time artists spend on tedious and redundant tasks.

Scantoon recognizes blue lines and allows the artist to draw with special effects (shade, reflections, etc.). It automatically detects pegholes in order to perfectly position the drawings. Paintoon fills in cells either automatically or manually; artists define a color palette and a model sheet which allows for color changes. Color modification is quick and easy. Expotoon works with multiple actors and manages camera moves. A preview is possible at any time during each step of Digitoon.

Also new from Getris is a new version of Hurricane, the multi-DVE layer graphics suite. New tools offered include Real-time Image Distortion Effects (RIDE technology), which allows real-time cross-morphing on still or live images. RIDE also provides new software-programmable, multilayer effects including Tornado and Galaxy.

The Auto-Tracking and Stabilizer Module program, based on MPEG tracking algorithms, allows the tracking and stabilizing of a specific pattern or chroma/luna value on one or several video clips. Respecting trajectory as well as corner pinning, cushion moves and zooms, this tool is integrated with the real-time compositing tools of Hurricane.

A high-performance multi-channel chromakeyer treats transparent objects such as glass and windows, as well as shadows and smoke. The quality and speed are enhanced by new 32-bit algorithms. An EDL Module can conform an offline list for D-1 quality output, sparing clients the costly time of a traditional digital editing suite. The EDL Module is built to import lists coming from Immix, Avid and others under the CMX format.

Getris Images, (33) 76 90 97 77, FAX (33) 76 90 72 34.

Digital Film Scanner

The Imagica Digital Film Scanner IDS3000 is now switch-selectable to 1K, 2K, 3K and 4K resolution. With this new feature, the scanning speed is reduced accordingly when the resolution is switched from, for example, 4K to 2K, resulting in increased productivity. The IDS3000 is a precision film scanner designed to transfer 35mm motion picture film into resolutions as high as 4K x 3K pixels, 36 bits per pixel, linear digital image data productivity. It employs a state-of-the-art tri-color linear CCD for pickup and a proprietary movement capable of fast film shuttling with the most precise film registration. Magnification and scanning position are optically variable to extract the maximum resolution out of the various 35mm film formats.

The tri-color CCD reads up to 12 million pixels from one frame of motion picture film. To meet the tolerance required at this resolution, the newly-designed, high-precision, pin-registered movement locks the film frame in its place during the scan.

The Imagica's advanced film movement also permits high-speed shuttling of film for quick access to any frame within the film roll. While in the high-speed mode, the registration pins are free from contact with the film perforations and the image area. This film path provides the safest film control, even in multiple passes, and improves the efficiency and operational perfor-

mance while in production.

The tri-color linear CCD pickup provides the highest resolution and sharpest image without misregistration between the three colors, since red, green, and blue are scanned simultaneously. The combination of proprietary dichroic filters and this CCD provide significantly reduced cross-talk between red, green and blue colors, resulting in improved reproduction.

The magnification and scanning position are optically and mechanically adjustable, which permits extraction of the desired maximum resolution out of any film format. These features improve the efficiency and flexibility of operational performance during production.

Imagica Corporation, 5301 Beethoven St., Suite 199, Los Angeles, CA 90066, (310) 306-4180, FAX (310) 306-2334.

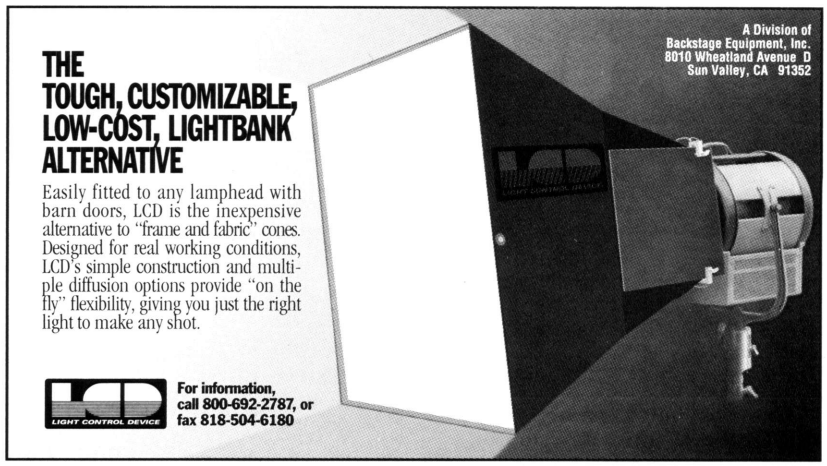
Digital Video System

Fast Forward Video has introduced a new digital video subsystem designed for use in digital cameras and other portable video applications. Recon 11 offers broadcast-quality video recording and playback, and two channels of CD-quality audio in a component that measures less than four inches square.

The Recon 11 achieves video record and playback resolution that exceeds that of Betacam-SP through its innovative design and use of Joint Photographics Experts Group (JPEG) technology.

In an approach first pioneered by Fast Forward for its release of the Outlaw board in 1992, the Recon 11 bypasses the computer's local bus and IDE drives to record direct to SCSI 11 hard disks. This design avoids restrictions on the compression bandwidths that in other systems result in poor image quality and JPEG artifacts. The Recon 11 records and plays back 60 fields per second/30 frames per second NTSC, or 50 fields per second/25 frames per second PAL.

The Recon 11 can be used as a stand-alone device, as in cameras, or as a plug-in subsystem for an ISA compatible computer. As the board places no demands on the host computer's bus or microprocessor, multiple cards can be placed in an ordinary AT-class machine. Linked with current generation SCSI hard drives, the Recon 11 can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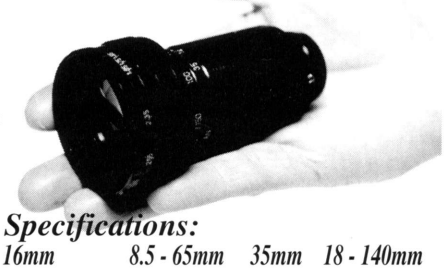

Specifications:

16mm 8.5 to 47mm 35mm 18 to 100mm
Anamorphic 36 to 200mm 2/3" Vid 7.3 to 40mm
1" Video 10 to 58mm
Aspect Ratios: 1.33, 1.66, 1.85, 2.35

Specifications:

16mm 8.5 - 65mm 35mm 18 - 140mm
Anamorphic 36-250mm 2/3" 7 - 55mm
1" 11- 80mm 1.25" 14 - 100mm
Ratios: TV, 1.33, 1.37, 1.66, 1.77, 1.85, 2.35, 2.55

The Micro Finder, and Micro-Finder XL, feature solid aluminum construction, coated glass optics, and ultra compact design. Unlike most directors finders which are large and bulky the Micro Finder, or Micro-Finder XL, can be worn all day without neck strain. The Micro Finder offers the most commonly used focal lengths for both 16mm, 35mm, 35mm anamorphic, and video use in a variety of aspect ratios. The Micro Finder utilizes drop in frame masks while the Micro Finder XL has internally changing frame masks and an extended range of focal lengths. Each finder comes with a padded carry case, and six month warranty. Call for catalog.

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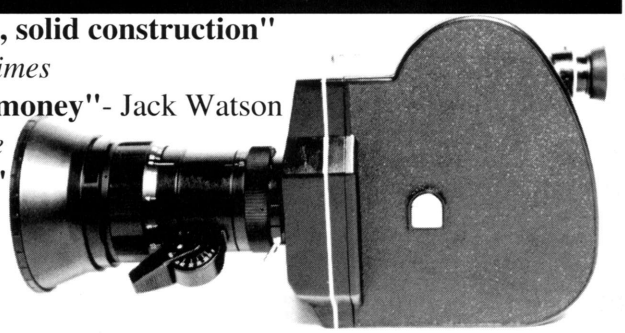

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All cameras come with a complete set of accessories including 17-69mm zoom lens, pistol grip, shoulder brace, five glass filters (ND, UV, Light and Dark Yellow, #2 Diopter), cable release, case, warranty, and more! The camera utilizes rotating mirror reflex viewing, and has an operating range from 8-50fps with single frame. Made of solid aluminum construction the K-3 even has a built in through the lens light meter. Available in optional Arri-B or in universal screw mount. Find out for yourself why the K-3 is the most popular new camera in America. Call today for a free brochure.

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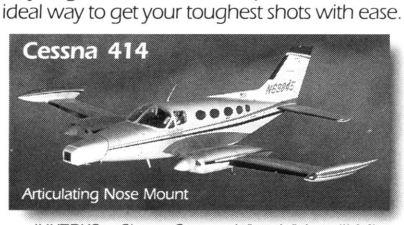

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record hours of broadcast-quality video and yield a compression rate as low as 4:1.

The Recon 11's PC-104 standard bus is a new form factor that allows small circuit boards to be stacked for economy of size and portable applications. Other features include full CCIR601 internal resolution, dynamic quantization, an ethernet controller, an RS-422 serial port, an onboard 80386 EX microprocessor, 4 MB multi-ported video/audio buffer, 256 KB of flash memory and 256 KB 0 wait-state SRAM.

Included with the Recon 11 is MOE (Media Operating Environment) software, an open-architecture operating system for management of multimedia digital data streams on mass storage devices. MOE is a complete developer's kit designed for OEM users. It includes a C Language Application Program Interface Library that allows complete, high-level control over video hardware, compression configuration and access to frame data.

Also new from Fast Forward is the latest version of its Bandit digital video recorder. The new version includes 2+ channels of CD-quality audio and will function as a complete Betacam SP replacement deck.

Fast Forward Video, (714) 852-8404, (800) 755-8463.

Video Editing System

Videomedia's new SuperDesk video editing system features the Videomedia OZ-Pro I editing system and V-LAN PC-2R device controllers mated to Panasonic's integrated video recorder and switcher system. Panasonic provides the S-VHS video recorders, players and switchers for the SuperDesk system. The use of V-LAN ensures present and future compatibility with a range of video devices.

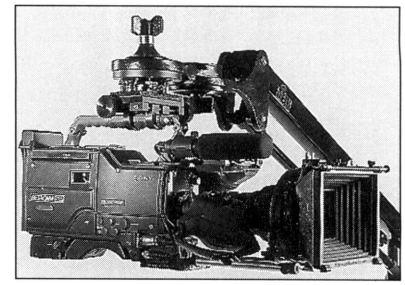
Videomedia, (408) 227-9977, FAX (408) 227-6707.

Jib Accessory

Designed primarily as an accessory for jib arms, Cinekinetic's Underslinger operates equally well with any hi-hat or tracking system that allows the facility for inverting the tripod bowl.

Duplicating the performance of an expensive post head, the Underslinger works with any conventional fluid head. Tilts and pans are effected in normal fashion.

The Underslinger supports the camera from the handle rather than the



baseplate. In this way underslung operation is provided at affordable cost.

With this accessory, jib operators may effect ground-level shots as well as those impressive shots where the camera glides effortlessly across a dinner table between the dinner glasses, or through a doorway at eye level.

Weighing only 625 grams (22 ounces) and with dimensions measuring 50mm x 80mm x 180mm (2" x 3" x 7"), the Underslinger provides an almost invisible interface between the tripod and the camera.

Cinekinetic, 2 Avon Court, Thornlie, Western Australia 6108, 619-459-3690, 619-493-2168.

Tripod

O'Connor Engineering Labs' 25L Tripod is a two-stage design made of lightweight carbon fiber. Weighing only 7 pounds and offering a height range from 15 to 66 inches, it goes higher, gets lower, and is lighter and more stable than any comparable tripod. The 25L comes equipped with a 100mm Ball Top Casting, Mid-Leg (removable) spreader, and spike guards.

O'Connor Engineering Labs, (714) 979-3993, (212) 460-9471.

16mm Lenses

Panther has modified several Canon lenses for Super 16 and standard 16mm film, featuring a 10-160mm T2.4 zoom. The lens' integrated focus doubler, specially adjusted by Canon, remains, and by turning over a small lever, the focal length is doubled to a range of 20-320mm. The reinforced mechanics allow the use of a customary follow focus and adjustable fluid drive.

Also offered is the Canon 8-64mm T2.4 lens (with focus doubler: 16-128mm) as well as a Canon 11-363mm 1:2:0 zoom for extreme requirements (with focus doubler: 22-726mm).

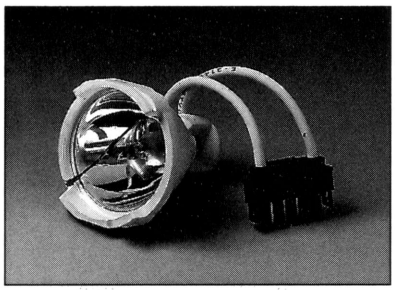
The lenses are available with Arri bayonet or PL mount, or, optionally, both. The lenses can be equipped with

the customary Betacam video mount in seconds, an advantage for application with video cameras, as video operators can now also make use of a follow-focus or fluid drive.

Panther, Oberhaching, Germany, (49) 89 613 1007.

Metal Halide Lamp

ILC Technology's DT1400W/24 metal halide lamp uses a durable ceramic reflector and eliminates breakage problems caused by re-lamping and overheating. The combination of short arc length,



5600°K color temperature, and 500-hour life make the unit a good choice for follow-spot and special effects lighting.

ILC Technology, (408) 745-7900, FAX (408) 744-0829.

Lighting Fixture Line

Videssence's Best Boy lighting fixtures are designed to provide lighting for key, fill, back, top or flood of interiors. The Best Boy 78 and 110 fixtures are powered by remote electronics, and have the unique RAM ball-and-socket mounting system as well as traditional yoke-and-bale mounting. The Best Boy 660 is a lightweight, self-contained panel with electronics contained within the fixture housing. Wattages for the three fixtures are 78, 127, and 765, respectively.

Best Boy fixtures come with a full complement of production accessories, including Softspot optical film lens, 4-Leaf barndoor, plastic eggcrate, and gel frame.

Also new from the company are its Modular lighting fixtures, concept lights available in two output levels. In the studio, Modular fixtures can be used for lighting all talent zones, scenic backgrounds, or linear accents such as indirect coves, chromakey walls, and audiences. They can be also used in teleconferencing and in non-studio spaces in office buildings and warehouses.

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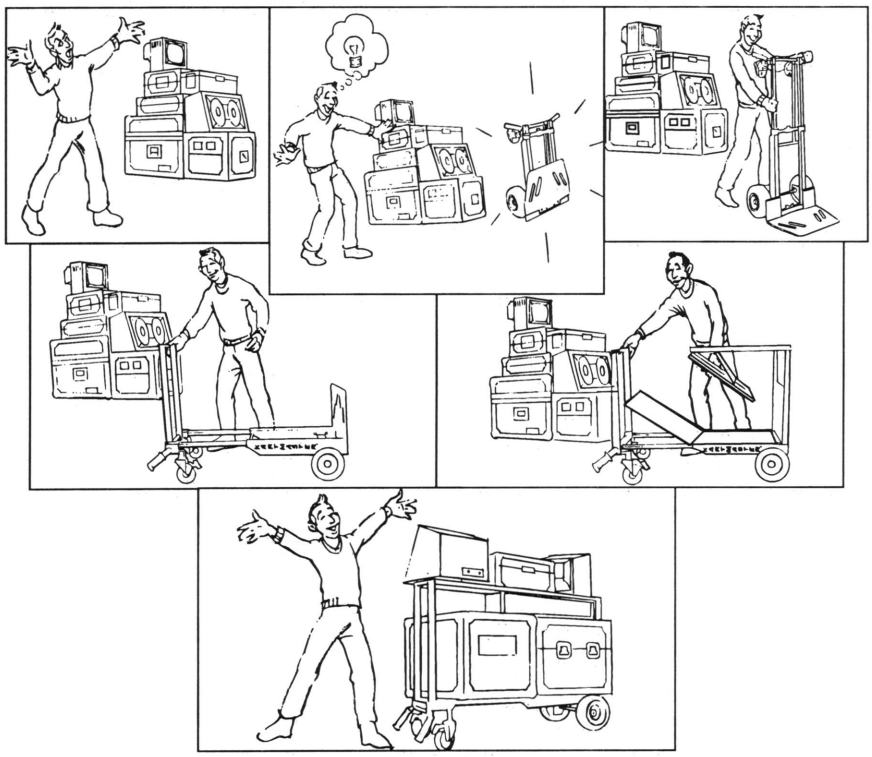

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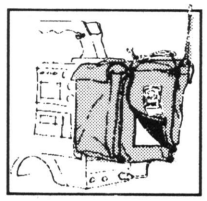

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Denny & Terry Clairmont on the 25-250HR.

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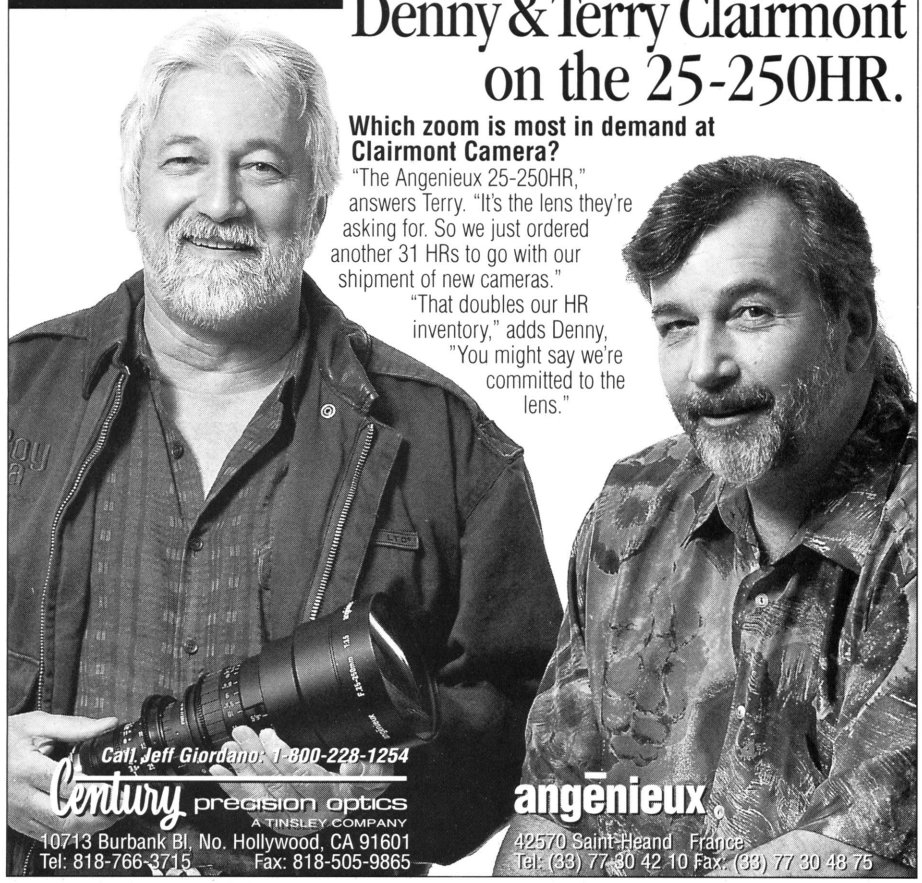
"That doubles our HR inventory," adds Denny, "You might say we're committed to the lens."



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110 are linear and compact so that they can be used with low lighting grids or in rooms where the fixture must underhang a low ceiling. A unique dovetail track interlock is the key feature of the Modular fixture body, and allows up to four fixtures to be ganged together on a single yoke. The unit is completely self-contained and the fixture face is equipped with a Softspot Linelens, which condenses and focuses the illumination into a powerful directional field.

The company's Mod-Lites, the building blocks of the Modular product line, are high-output, self-contained (non-dimming) and remotely-powered (dimmable) linear fixtures constructed of composite extrusions. Each fixture has dovetail tracks that run the length of the fixture and allow them to be joined together or used in a chain.

Fixtures range from 1.5 to 4 inches in depth and are available in three lengths: 18, 36, and 48 inches. They are attractively finished, with the appearance of a quality architectural lighting fixture.

Videssence, (415) 579-7577, FAX (415) 579-7579, videssence@aol.com.

Film-to-Tape Transfer System

Debrie's Dixi is a non-broadcast, film-to-tape transfer system offering color correction which replaces the use of costly external broadcast telecine for offline editing. The video image is obtained by a 700-line three-CCD camera. The optical system allows film-to-video transfer with full video field locking. During the telecine transfer process, Dixi automatically reads, captures and stores in a database the film information (film edge code, keycode numbers) and generates video and audio timecode accurately.

As a conventional color analyzer, Dixi allows the grading of any 16 or 35mm negative or positive film. Its software stores all RGB, FCC values, and fades in a 3.5" diskette or punch tape for a film print.

Debrie, 125 Avenue Louis Roche, 92230 Gennevilliers, France, (33-1) 40 85 82 82, FAX (33-1) 40 85 82 63.

Matte Box

Hollywood Camera's 4 x 5 Revolution Swing-away Matte Box comes equipped with a 3X filter stage for three 4 x 5.650 push-through filters that

are fully rotatable. The 3X filter stage has a rear receptacle for 138mm or 4 ½" filter rings for anti-reflection. The Matte Box allows five filters to be used simultaneously. The design enables the box to swing open 185 degrees to the front. For the lateral side adjustment, a quick-set lock allows the matte box to move easily to and away from the lens with every turn. The matte box has a fully-removable shade which pulls off smoothly within seconds, and can be used on the SR2, SR3, BLs and 35-3 with its own accommodating support brackets.

Hollywood Camera, (818) 501-5000, FAX (818) 784-2774.

Handheld GPS

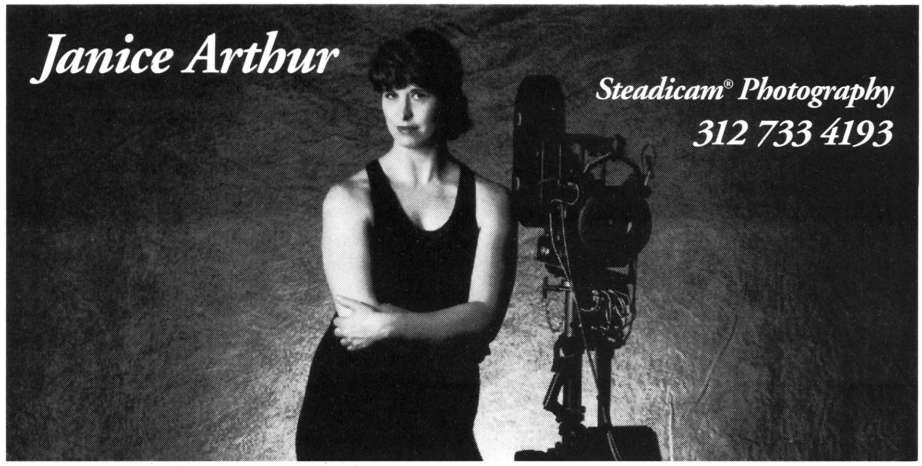
Trimble Navigation's handheld Global Positioning System, ScoutMaster GPS, is a palm-sized receiver that uses signals from the 24 Global Positioning System satellites to pinpoint a user's position anywhere on Earth, at any time of day, in any weather. Designed for the land navigation market, ScoutMaster also guides users to any location stored in its internal database.

In addition to calculating positions and providing navigational data, ScoutMaster can save 250 locations in memory and, via its serial RS-232 I/O port, download them to a computer. ScoutMaster uploads location data as well, and its mapping software plots locations data to scale. It also helps users output their data onto a transparent overlay, which can be placed directly over any topographical map. The unit is differential capable, meaning it can provide accuracies of better than ten meters in real time.

Trimble Navigation, (800) 827-8000, FAX (408) 481-7781.

Crystal Drive Motor for Bolexes

Tobin Cinema Systems has a new crystal drive motor for Bolex H-16 cameras. Mounted to the spring winding thread and the one or two tripod threads, the TCS TXM10-B will fit any clockwork Bolex 16mm camera made since 1955 or perhaps earlier, including hundreds of thousands that heretofore had no possibility of being used for crystal-controlled filming. The drive is connected through a flexible coupling to the 8-frame shaft. A CNC-machined aluminum bottom plate 0.5" thick provides new tripod threads and ensures rigid attachment.



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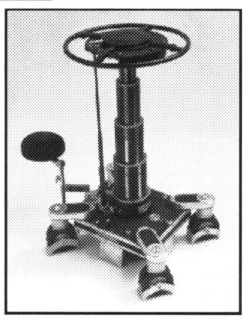
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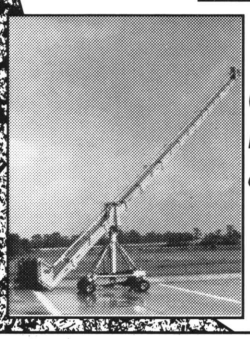
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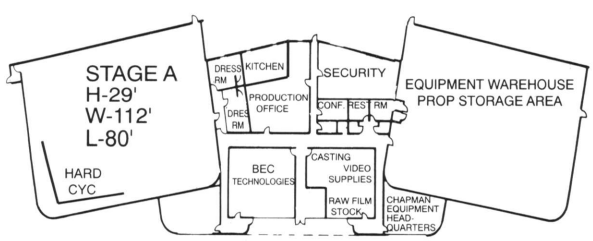

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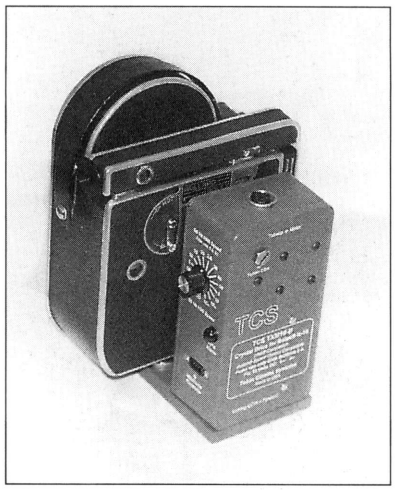

The drive provides 15 speeds from 5 to 60 fps, including the standard 24, 25 and 30 fps sound speeds. All of the speeds are HMI compatible, for film footage without exposure pulsation under HMI or fluorescent lights, or discharge-type street lights. Ten of the speeds are compatible with 60Hz power, and eight are for 50Hz. With the TXM10-B a new or ancient Bolex is fully usable for filming to sync playback as in music videos, or with a blimp for sync-sound filming.

An Aaton-compatible socket accepts external speed control. The optional Tobin Milliframe Controller permits the adjustment of running speed in 0.001 fps steps over the range of 5 to 60 fps, or about 55,000 speeds. This enables filming from video or computer monitors with control over shutter bar. (Since the Bolex lacks a mirror shutter, a modified technique is required and is explained in the instructions.) It also enables filming for Rank or Bosch video transfer in conjunction with double-system audio on DAT (digital audio tape) or Hi-Fi videotape that cannot be speed corrected to match the 23.976 or 29.970 fps NTSC film rate. By filming at either of these exact speeds, lip synchronization can be maintained.

The TXM10-B is powered by 12 volts DC through an industry-standard XLR 4-pin male receptacle. Cables are available for the magazine torque motors.

Also new is the company's model TXM10-S crystal drive system for Arri 16-S and 16-M cameras; the TXM-D crystal motor for the Krasnagorsk K-3 16mm camera; and the TMC-55A, a version of the Tobin Milliframe Controller. The latter has been improved to have a detachable cable and up to seven different output frequencies per speed, to be usable with a wide variety of cameras. Standard cables now include the Fischer 11-pin for Arri 16-SR, 16-SR High Speed and 35-BL cameras; the WPI 9-pin for Aaton cameras; and DB-9 9-pin. In addition, the Milliframe Controller can be used with many other cameras, including Arri 16-BL, Bolex, Eclair, Krasnagorsk, and Ostcam, after they have been equipped with updated TCS electronics.

Tobin Cinema Systems, Inc., phone/FAX (206) 932-7280.

Dolly Track

Omega Precision Track is designed with a round top and flat bottom, through which sleepers can be attached without welding, thus giving a better quality tube. Five sleepers per two-meter section ensure that no sagging will occur even under the heavy weight of a crane. The stainless steel joints ensure smooth movement. When shooting with long lenses or a hothead on a long crane arm, there are no jolts when going from one track section to the next.

Barlux Nederland, Huizen, Holland, (0) 2152-56892.

Lenses

Optica's Optar Illumina Super 16 high-speed prime lenses and 35mm/80, the first in a series of motion picture lenses from the Optica factory in St. Petersburg, Russia, offer high-efficiency, multi-coated optics in an intuitive and durable mechanical construction.

The full Super 16 prime series includes focal lengths of 8, 9.5, 12, 16, 25 and 50mm. All lenses have a maximum aperture of T1.3. The 8mm lens is one of the fastest Super 16-capable lenses available in this focal length.

Mechanical features include standard 80mm front diameters, built-in iris and focus gears, individually calibrated focus rings, and fluorescent iris and focus markings on both sides of the lens for easy operation from either side of the camera.

The lightweight 25mm/80 T3.3 variable prime lens weighs just 2.25 lbs. and is ideally designed for Steadicam and handheld operation.

Abel Cine Tech, New York, (718) 273-8108; Kish Optics, Los Angeles, (310) 454-9751.

Intermediate Film Stock

Fuji's latest addition to the Super F-Series line of motion picture

films is the Fuji Color Intermediate Film, a high-definition, ultra-fine grain intermediate stock designed to produce exceptional high-resolution and ultra-fine grain that preserves all the color and gradation of the original negative. Ideally suited for optical work, FCI can be used for impressive wipes, fades, dissolves and title effects that result in rich, lifelike, natural images.

Fuji is also introducing its non-resin-backed positive print stock 8816, a polyester release print stock that incorporates Fuji's anti-halation layer between the base and emulsion layers and a patented anti-static property, eliminating static electricity and ghosting images. With no black rem-jet backing to remove, laboratories use less water and chemicals in processing, and carbon backing no longer needs to be removed.

Fuji Photo Film, (914) 789-8148.

Upcoming Events

September 1-4: Telluride Film Festival, Telluride, CO. (603) 643-1255, FAX (603) 643-5938.

September 6-9: SMPTE Technical Conference and World Media Expo, New Orleans. (914) 761-1100, FAX (914) 761-3115.

September 7-30: Czech Cinema Festival, presented by the American Film Institute at the John F. Kennedy Center for the Performing Arts, New York City. (202) 828-4090.

September 7-10: A Weekend with Werner Herzog In Person, American Cinematheque at the Directors Guild Theater, Hollywood, (213) 466-FILM.

September 8 DEADLINE FOR ENTRIES: London Effects & Animation Festival, November 28-30. 44 (0) 181 995 3632, FAX 44 (0) 181 995 3633.

September 13-17: Temecula Valley Film Festival, Temecula, CA. (909) 699-6267, FAX (909) 695-5126.

September 14-17: 15th Annual Breckenridge Festival of Film, Breckenridge, CO. (303) 453-6200, FAX (303) 453-2692.

September 15-17: Robert Bordiga's Nuts & Bolts Production Seminar, Los Angeles. (800) 755-PROD.

September 17-24: 17th Independent Feature Film Market, New York City. (212) 274-1990, FAX (212) 966-4957.

September 18-23: Jackson Hole Wildlife Film Festival, Jackson Hole, WY. (307) 733-7016, FAX (307) 733-7376.

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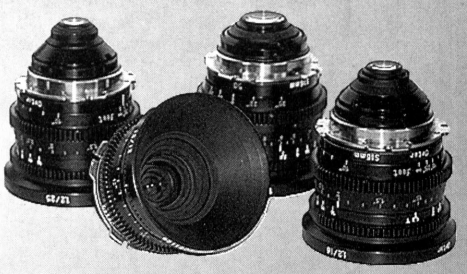

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The 435 is a spinning mirror reflex camera with a 170 degree blanking shutter. The internal 30VDC motor runs the camera from 2 to 150 FPS forward and 2 to 50 FPS reverse, in one frame increments all crystal. The camera is equipped with take-up and supply torque motors.

There are both 1000 ft. and 400 ft. displacement type magazines. A new feature is the light valve which allows the operator to direct all the light to the viewing system, or to the video assist, or combo which splits the light between both viewing and video assist.

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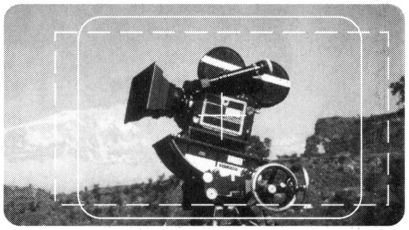

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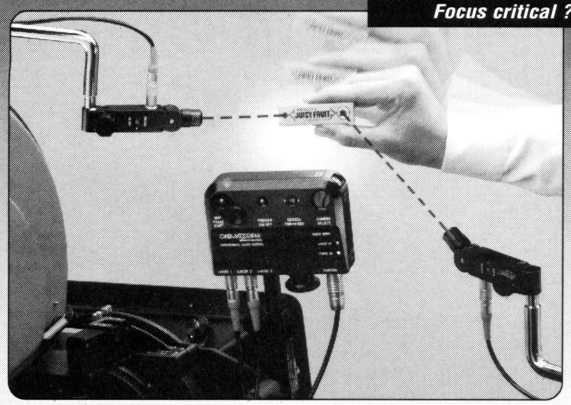

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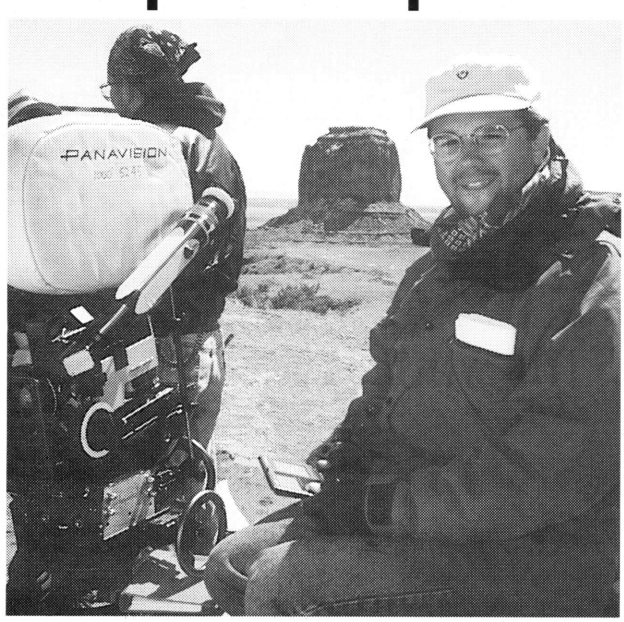

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September 21-24: Portland Creative Conference, Portland, OR. (503) 235-4001, FAX (503) 232-8505.

September 21-October 1: Sixth Festival International Du Film Scientifique du Quebec. (514) 849-1612, FAX (514) 982-0064.

September 22-24: ShowBiz Europe, Munich. (49) 89 47 02 399, FAX (49) 89 47 07 605.

September 27-28: Rocky Mountain Film & Video Expo, Denver, CO. (303) 771-2000, FAX (303) 843-6232.

September 30 DEADLINE FOR ENTRIES: 18th Tokyo Video Festival, an International Video Contest for Amateurs and Professionals. JVC Company of America, 41 Slater Drive, Elmwood Park, NJ 07407, Attn: Tokyo Video Festival Tape.

October 5-8: Austin Heart of Film Festival, Austin, TX. (512) 478-4795, FAX (512) 478-6205.

October 9-12: "Charge-Coupled Devices, Cameras and Applications," UCLA Extension engineering short course, UCLA Extension Bldg., Los Angeles. (310) 825-1047, FAX (310) 206-2815, mhenness@unex.ucla.edu.

October 10-15: Hammer Horror Weekend, American Cinematheque at the Directors Guild Theater, (213) 466-FILM.

October 10-21: Flanders International Film Festival, Ghent, Belgium. (32) 9 221 89 46, FAX (32) 9 221 90 74.

October 12-15: 2nd Annual Metroland International Short Film Festival (MISFF), Albany, NY. (518) 453-1000, FAX (518) 453-1350.

October 12-22: V'lennale International Filmfestwochen Wien, Vienna, Austria. (43) 1 526 59 47, FAX (43) 1 93 41 72.

October 12-29: 31st Chicago International Film Festival. (312) 644-3400, FAX (312) 644-0784.

October 13-15: Robert Bordiga's Nuts & Bolts Production Seminar, New York City. (800) 755-PROD.

October 20-22: 36th Brno Sixteen, international competition of non-commercial feature film and video programs, Brno, Czechoslovakia. (05) 4221 6260, FAX (05) 4221 4625.

October 20-28: Rochester Lesbian & Gay Film & Video Festival, Rochester, NY. (716) 244-8640, FilmFest95@aol.com.

John Boorman Goes Beyond Rangoon

by Brooke Comer

Director John Boorman loves to shoot in the jungle. Even before his ICM agent brought him the script for *Beyond Rangoon*, about an American widow (Patricia Arquette) caught outside the city of Rangoon during an uprising against the country's fascist regime, he'd wanted to make a film about Burma.

"I've always had a strong interest in the political situation in Burma," admits the director. "I followed it as closely as I could, considering no foreign journalists were allowed in." He calls Aung San Suu Kyi, leader of Burma's National League for Democracy and winner of the 1991 Nobel Peace Prize "a hero, whose great bravery inspired me to make a film about her even before I got this script." The story is fictional, but the character of Aung San Suu Kyi (played by Adele Lutz), who was kept a virtual prisoner by the Burmese military for seven years and only recently released, does make an appearance.

The number of jungle scenes in *Rangoon* might have intimidated another director, but Boorman, whose work includes *Hell in the Pacific*, *Deliverance* and *The Emerald Forest*, jumped at the chance to go back to the tropics. He chose an Australian crew, including cinematographer John Seale, ACS, because of their proximity to the location. Seale, who won Academy Award nominations for *Witness* and *Rainman*, also shot second unit on *The Year of Living Dangerously*, a film similar in theme to *Rangoon*. "I liked John's work and his spirit," says Boorman. "I cast crew like I cast actors. *Emerald Forest* was a physically challenging film, so I chose Philippe Rousselot, who's a mountain climber and skier as well as a wonderful cinematographer." Boorman certainly found his crew tough enough. "Australians in general don't complain about difficulties. It's a matter of pride for them, while British crews complain about everything. American crews come on strong, but they complain too if you run out of peanut butter."

Boorman knew that in the tropics, the overhead sun flattens out the light. "I enjoy shooting in the jungle, because I'm interested in man's relationship to primal nature in terms of the way nature externalizes emotions. In the jungle, you need that overhead sun, because it's the only light that penetrates through the foliage, but that makes the light quite boring, and forces you to shoot your important shots in the early morning or late afternoon when the sun is at more of an angle; in late evening you don't have enough light. Then when the sun does come through, there's too much contrast, with bright and dark patches, and you end up using a lot of lights to balance it and make it interesting. In big shots, where you can't use lights, it's just a matter of waiting for the right natural light."

Location, not lighting, turned out to be the filmmakers' biggest challenge. "We couldn't shoot in Burma," says Boorman, "because of the political situation there." Malaysia, whose colonial towns, ethnic villages, paddies and rivers resemble Burma, was chosen instead. But two weeks into the shooting the Malaysian government suspended the filmmakers' permit to shoot in their country: the film's anti-military message had enraged the Burmese government, who pressured Malaysian officials to stop the film. Boorman had banked on Malaysia's support; the Muslim country was furious at Burma's "ethnic cleansing" act, which expelled a quarter of a million Muslims in 1988. He expected Malaysian officials to be sympathetic to a film that exposes Burma's fascism, "but I was mistaken," he admits. "Burma and Malaysia are quite friendly now."

Boorman kept the cameras rolling by presenting Malaysian government officials with a phony script in

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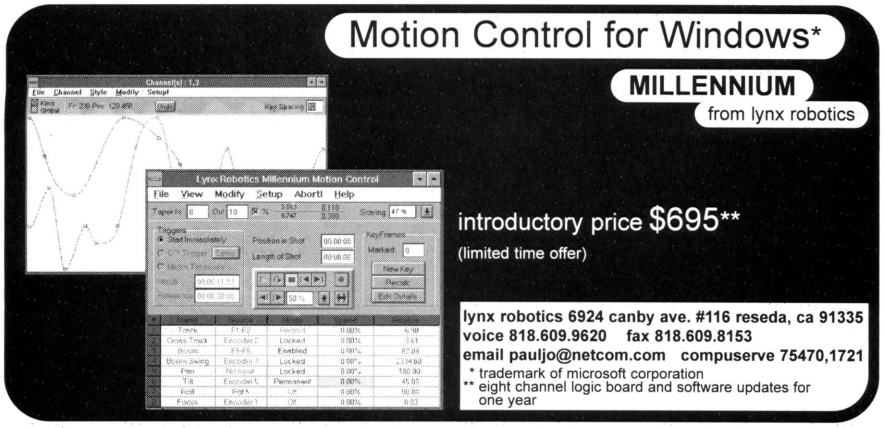
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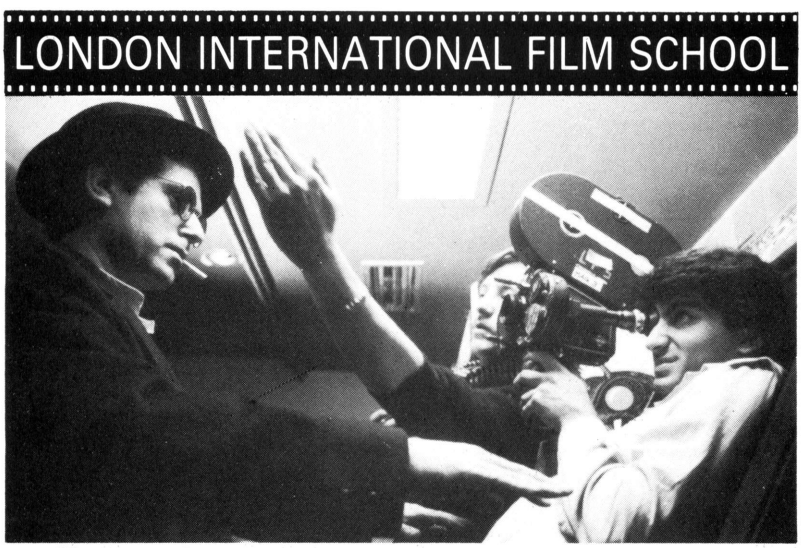
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which all references to Burma were deleted. "They didn't really believe we'd changed the film," he explains, "but they pretended they did and that's how we managed to continue."

There were still problems. The Muslim Malaysians were offended by one of the props, a large reclining Buddha. "They felt we were imposing the Buddhist religion on them," Boorman explains. The Malaysian government also reneged on a promise to give Boorman full cooperation from the Malaysian Army, and refused to let him bring Burmese actors into the country. "Since the story takes place in Burma, we wanted Burmese natives onscreen, and initially we'd been promised that they'd be allowed in the country." That promise was revoked, but Boorman got around the latter obstacle by smuggling actors into the country. "In the final analysis," he recalls, "the Malaysians' change of mind didn't really hold us up. It just cost more money."

Boorman filmed *Rangoon* in anamorphic with a Panaflex Gold and prime lenses. "I always intended to shoot in anamorphic," he explains. "There are only a couple of sets of lenses available, but I didn't find that a problem. They offer tremendous resolution and definition." He also used an Mitchell sidefinder as a viewfinder. "It has a large glass viewer, so John and I could look through it and I could show him exactly where the composition was."

In a final scene, when the militia chases resisters, mainly students, through the jungle and across a fast-moving river, Boorman found he'd done his work a little too well. "We had thousands of extras, and we had to train them," he explains. "In this scene, many of them had to die. They had to collapse into the water and look wounded or drowned." Then the extras were told to let the current carry them down river, where they'd be picked up by boats, manned by lifesavers, that were strung across the water. "But some of the extras gave such convincing performances as they struggled," Boorman recalls, "that my lifeguards would dive into the shot to rescue them, which of course ruined the shot."

Books In Review

by George Turner

Mists of Regret
by Dudley Andrew
Princeton University Press,
409 pps., cloth $59.50,
paper $24.95

The French film industry began at the top a century ago, when the Lumière brothers gave the first public showings of projected motion pictures. During the next 30 years it offered much greatness: the fantasies of Méliès; Feullade's serial thrillers, such as *Fantômas* and *Judex;* and the silent classics of Clair, Renoir, L'Herbier, Gance, Carne and many others. In the 1930s, following a period of decline, French cinema gave us a distinctive body of work that became known as the style of "poetic realism." This term appears often in Professor Andrew's book (subtitled "Culture and Sensibility in Classic French Film"), which provides a knowledgeable view of the climate for the creation of these beguiling films.

When these pictures played at specialized theaters in the U.S. they were embraced by the intelligentsia. Others of us, addicted to the rich images of the American product, wondered why. The French films we were seeing were badly duped prints, marred by inadequate subtitles and brutal censorship, with soundtracks well below the American standard. In today's warm climate of restoration it is possible to experience some of these pictures much as they were intended to be seen. There's a world of difference, even on video.

The author succeeds in his goal of assessing the films according to the cultural milieu in which they were created. Numerous stills and frame blowups are juxtaposed with textual information, which is very helpful. Or, as it's stated in the book: "The habit of circling from text to illustration and back to text promotes a historiographic strategy that leads from the films to the culture for which they were in some way consequential and back again to the films; this strategy in turn inscribes itself atop that greater, hermeneutic circle that whisks us from our imbeddedness in the present back to the 1930s where we search not only for the significance that these artifacts — these strange and tantalizing films — portend, but where we may equally fabricate, under their guidance and that of the period, an import for our own lives and futures." It might be a good idea for the reader to have a dictionary at hand. (Yes, dammit, I did have to look up hermeneutic, and if you don't know what it means I'm not going to tell you.)

Psycho
by Janet Leigh
with Christopher Nickens
Harmony Books, 208 pps.,
cloth, $22

If all the books written about Alfred Hitchcock's films were stacked in a heap, the pile would rival Mount Whitney. There are good ones, thinly disguised rehashes of the good ones, and some as empty as an election-year pledge.

Janet Leigh has done Hitchcock fanciers a real favor with this one, which is devoted entirely to one film. Packed to the gunwales with personal reminiscences, on-set anecdotes, interviews and solid research, it offers an authentic inside look at Sir Alfred's remarkable opus of madness and murder. That it gives a close gander at his methods comes naturally as a matter of course. There are none of the over-educated guesses about "the real meaning" that are usually paraded in movie monographs, but much of the director's thinking is clarified by things he said on the set. A report about the after-effects of the production on some of the participants is fascinating. Co-writer Nickens does a nifty job of adding more factual information and providing an objective look at Leigh.

Psycho participants who were interviewed to augment Leigh's recollections include the late Robert Bloch, author of the original book on

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which the movie was based; co-star John Gavin; screenwriter Joseph Stefano; director's assistant Peggy Robertson; and assistant director Hilton Green. Correspondence with the late Tony Perkins is included.

Some stories that have been offered as gospel are dispelled, including the oft-told yarn about how the celebrated murder scene in the shower was made. And who would have suspected that Mrs. Bates' voice was dubbed by two women and a man? A raft of surprises like these make the book a little jewel for those of us who dote on Hitchcock minutia.

John Frankenheimer, a Conversation with Charles Champlin
Riverwood Press, 241 pps., paper, $24.95

During the 1950s the best things on those tiny TV screens were certain dramas telecast live from New York and Los Angeles, such as *Playhouse 90, Danger, Climax,* and *Dupont Show of the Month.* They were in black-and-white, the sound was sometimes klunky, there were occasional bloopers, the lighting was of necessity generic, and the camerawork was unsophisticated compared to what we were accustomed to seeing in the movies. Offsetting these handicaps was the fact that the writing, directing and acting were so very fine.

One of the great directorial talents from this frantic time was John Frankenheimer, who got the results one would expect from a grizzled veteran of the legit stage, but was only 24 when he directed the *Danger* classic "Knife in the Dark" with Paul Newman, 25 when he made "Private Worlds" with Claudette Colbert for *Climax,* and 26 when he jangled our nerves with the *Playhouse 90* version of Cornell Woolrich's "Rendezvous in Black." His features for the big screen include *Birdman of Alcatraz, The Manchurian Candidate, Seven Days in May, The Train, Seconds, Grand Prix, Black Sunday, The Holcroft Covenant* and 18 others. He is still making TV specials, including the recent miniseries *Andersonville.*

This large-format entry in the Directors Guild Oral History series is a good model for a book of this sort. It is candid, detailed, knowledgeably annotated, fully illustrated and has a videography and filmography.

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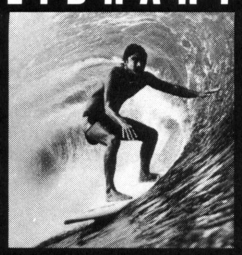

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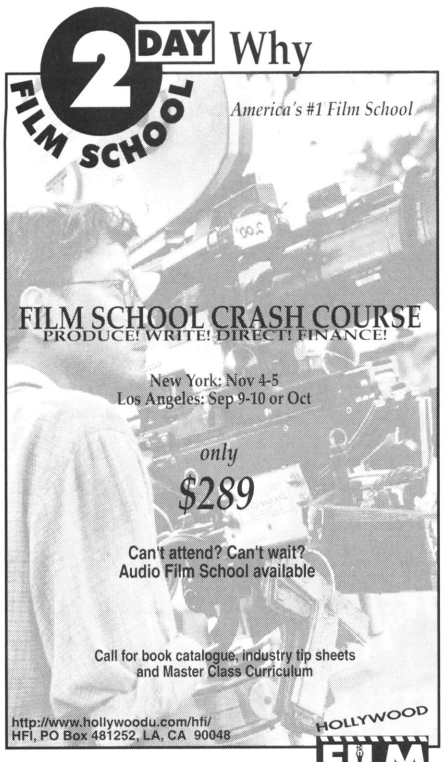

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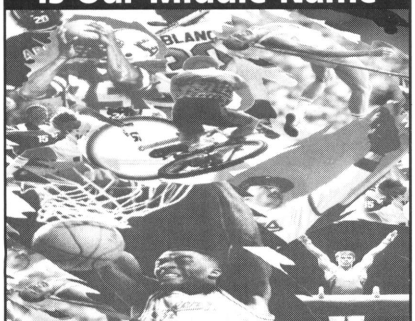

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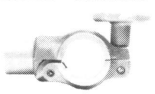

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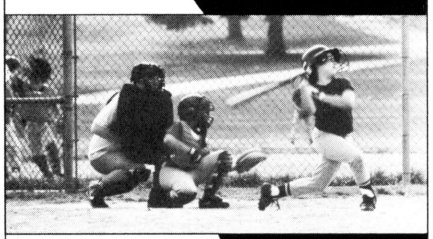

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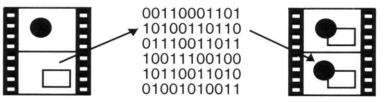

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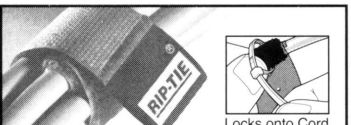

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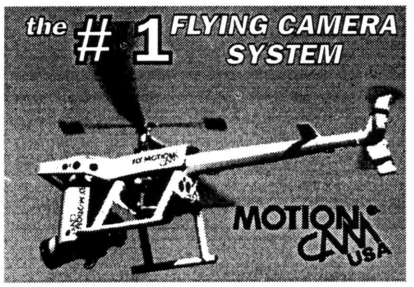

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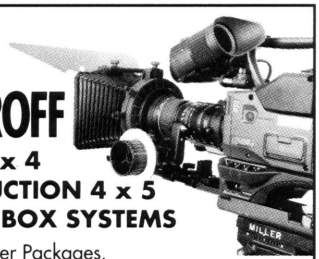

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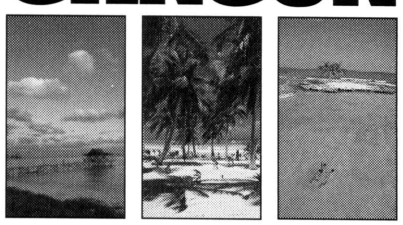

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AC 101
Action Sport 106
Aerobatic 92
AES 85
A & J Cases 66
Alan Gordon 109
Ambient 46
Archive Film 105
Arriflex 45
Athalys 104

Backstage Equipt. 91
Birns & Sawyer 17, 96
Bogen Photo 97
Boston Camera 85
Brooks Inst. 103

Camera Essentials 108
Camware 103
CEI 57
Century Precision 12, 94, 105
Chambless 102
Chapman 95
Chimera 105
CineAsst 102
Cine Power 88
Cine Radio 18
Cine Sound 5 105
Cine South 108
Cinekinetic 2
Cinema Products C-2
Cinematography Electronics 98
Cinemills 90
Cineon 27
Cinequipt 99
Cineric 107
Clairmont 8, 9, 53
Clamp Flag 107
Coffey Sound 104
Columbia College 98
Cool-Lux 74
CTM 84

Deluxe C-3
Denecke 26
Digital Editing Systems 43
Dittrich, S. 109
DN Labs 108

Eastman Kodak 47, 73
Efilm 5
Electric Image 15
Energy Productions 107

Fabulous Footage 108
Film Video 82
First Light 56
Fish Films 107
Flamingo 106
Fletcher Chicago 12
Focus 65
Foto-Kem 13
Four Designs 108
Fries Engineering 97
Fuji Film 11

Geo Film 93
George Paddock 22, 23
Great American 10, C-4
Gunner Light 66

Hand Held 82
HQ Studio 83
Hollywood Film Inst. 106
Hybrid Cases 108
Hydroflex 109

IDA Congress 81
Image Bank 109
Image G 98
Image Maker 103
Innovision 74
Interformat 33

Janice Arthur 95
JBK Cinequipt 109

Kart-A-Bag 93
Kaye Lites 109
K&H Products 94
Kenworthy 43
Kinoflo 86, 109
Kish Optics 88

Lightning Strikes 99
London Intl. 100
Lowel Light 16
Lynx Robotic 100, 102

MacGillivray 104
Matthews 105
Maui County 81
Media Light 101
Media Logic 100
Military 108
Miller Fluid Heads 4
Miller Tripods 108
MKA 91
Motioncam 107
Movie Com 108
Moving-Cam 6
Musco Mobile 44

N.Y. Film Academy 102
Nalpak 28
NCE of FLA 107, 109
New Image Intl 97
Norris Film 83

O'Connor Engineering 76
Oppenheimer 52, 88
Optex 19, 75

Panavision Fla. 29
Panavision Hollywood 1
Preston Cine 55
Prime Time Post 31
Prime TV 86
Prosource 105

Quantel 7

Rank Cintel 34, 35
RGB Color 105
Rip-Tie 107
Rosco 67
Roy Isaia 84
RVS/ Ringer Video Services 92

SMS Productions 108
Sonosax 76
Stanton Video Services 88
Steadicam 4
ST Productions 103
Super 8 Sound 108

Tape House 28
Technovision 104

UCLA Ext. 77
Unitel Video 65

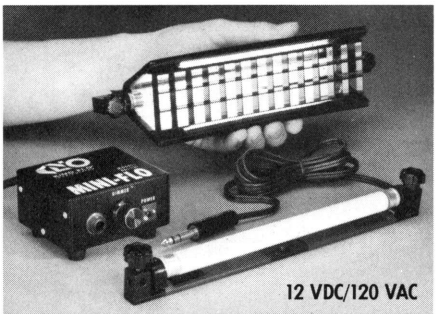
Vancouver Film 72
Vidor, Ron 102
Visual Pursuit 6, 103

Walt Disney 75
Weaver/Steadman 71
Whitehouse 105
Willy's Widgets 106

Xenotech 20

Yale Lab 107

ZGC, Inc. 21



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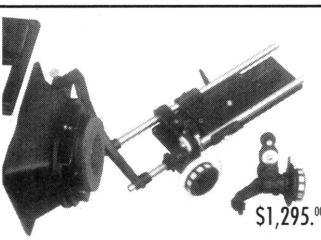

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cont'd from p. 112

posal was made for digitally archiving motion pictures. The proposal guaranteed digital format compatibility by suggesting that when digital storage formats changed (*when*, not *if*), past material would be cloned onto the new format at no extra charge. These proposals are made by those who don't fully realize the quantity of high-resolution imagery produced each year by Hollywood.

Film has not been without its problems as well. But the truth is that we *know* how to store film images (read ESTAR YCM masters) in ways that will assure their physical stability for *at least* 50 years. There aren't any mysteries about it; it's a "been there, done that" situation.

Which would you rather be holding in your hands 50 years from now? A copy of your movie on some ultra-high-resolution digital storage medium that may not have any devices around to interpret the data, or a set of black-and-white ESTAR YCM masters?

The point here is to clarify that digital technologies are wonderful enhancements to the process of making movies. With each passing month, new advantages are realized and change the ways we go about making movies. But let's not ascribe qualities to the digital medium that remain unproven. Electronic digital technologies are very attractive, but don't discount the analog aspect of an image on of film and the elegance it offers in storing high-resolution visuals. Just keep remembering: all you'll need in 50 years is a *light* and a *lens*.

Now that I've made such a good case for storing films on black-and-white YCM masters, lets hope the film manufacturers will update the state of the art 1954 YCM film stock currently in use. A nice T-Grain version would be wonderful...

Rob Hummel is an associate member of the ASC. He recently left his position as VP of Animation Technology at Walt Disney TV Animation to join DreamWorks Studio, where he will play a key role as a technology expert.

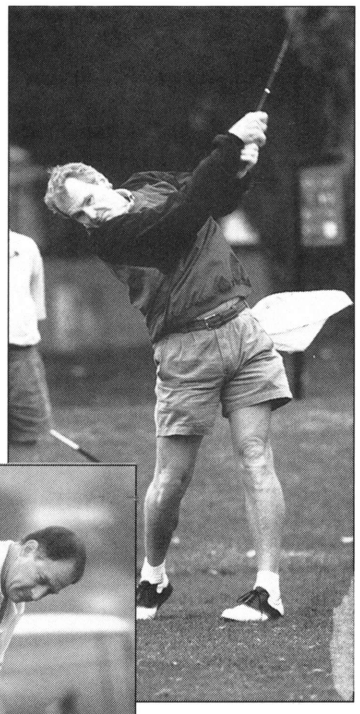
From the Clubhouse

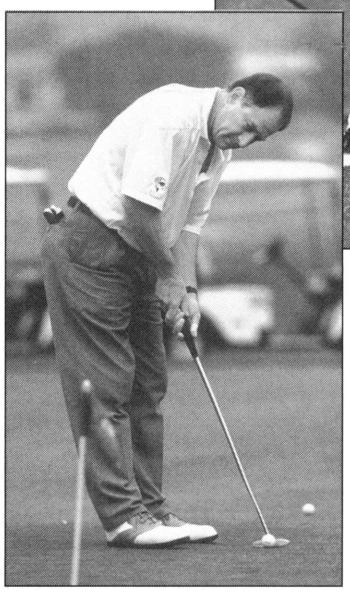
The ASC's newest active member is Don Burgess. A graduate of the Art Center College of Design, Burgess counts among his credits the features *Under the Boardwalk*, *Death Before Dishonor*, *Blind Fury*, *Mo' Money*, *Josh and Sam*, *Richie Rich*, *Forget Paris*, and *Forrest Gump*, for which he was nominated for an Academy Award for Best Cinematography. His television credits include TNT's *The Court Martial of Jackie Robinson*, which earned him a 1991 ASC Award nomination; *Breaking Point*, which pulled in a CableAce Award nomination; and "Yellow," a *Tales from the Crypt* episode directed by Robert Zemeckis for HBO which earned him the CableAce Award for Best Cinematography. He also provided additional principal photography on *Batman Returns*, *Backdraft*, *Back to the Future III*, *Rush*, and *Dead Calm*, as well as second-unit photography on *Batman Returns*, *Death Becomes Her*, *Backdraft*, *The Rookie*, *Back to the Future II* and *III*, and *Runaway Train*.

The 12th annual ASC Summer Golf Classic was held in June at Camarillo Springs Golf Course, located near the Motion Picture Country Home and Hospital. 90 golfers, including active members, associate members and guests, participated in the 18-hole tournament, which was again organized by Richard Glouner, ASC and Howard Anderson, ASC. Michael Watkins, ASC came away with the best Low Net score among the active members with 68.5, while Owen Roizman, ASC shot a Low Gross of 79. Al Mayer and Doug Pentek topped the competition among the associate members with a Low Net of 71 and a Low Gross of 83, respectively.

After the tournament, all of the golfers enjoyed a catered lunch in the Camarillo Springs clubhouse, and winners were fêted at a wrap party at the ASC Clubhouse on July 11.

Harold B. "Ted" Churchill, a pioneer Steadicam operator who had spent the past decade inspiring fledgling operators as an instructor, was killed in a car accident in June. Having started his career as a documentary cameraman, Churchill fell in love with the system the first time he saw it and henceforth worked exclusively as a Steadicam operator, serving on countless features. He eventually discovered that he enjoyed instructing about the system even more, and gradually moved to teaching full time, at the Maine Photographic Workshops in Camden, Maine and for Cinema Products' workshops in Los Angeles and Europe. "His joy and enthusiasm in terms of Steadicam was phenomenal," says his son, director/cameraman Jack Churchill. "If Garrett Brown invented the Steadicam," said one of his students in the hundreds of letters posted on America Online after his death, "Ted Churchill invented the Steadicam operator."





ASC members Owen Roizman (below) and Michael Watkins display their form.

Photos by Chris Probst and Jeff Granberry

Film as a "Mature" Storage Medium: "All you'll need is a light and a lens."

by Rob Hummel

Digital technologies are revolutionizing the film industry in astounding ways. Visual effects and techniques that once relied on tenuous mechanical implementations are now endlessly repeatable and allow artists an expanded creative palette never before imagined.

Because of the ways that digital technologies are meeting so many needs in the creation of motion pictures, I am afraid that the expectations many in our industry are placing on the digital medium are severely *mis*-placed.

This spring, the Federation Internationale des Archives de Film (FIFA) held a conference in Los Angeles. This association concerns itself with both television and motion picture archiving. I was startled by what I heard said at one session at Sony Studios.

Let me explain:

One of the officials of FIFA addressed an audience regarding the difficulties of maintaining video archives because of the more than 30 different video formats that have been in use over the years. The association is able to view various outdated video formats only by cannibalizing other machines to keep just one barely running. This is because as a new video format comes into use, the older format eventually falls into a category that is no longer supported by manufacturers.

There are extreme examples: a Fred Astaire special in the 1960s was recorded on a then-new video format that was never used again after that broadcast. I don't need point out the tragedy of recording a program on a magnetic medium which can no longer be viewed.

I was surprised when the discussion moved on to the subject of restoring film-based materials. It was stated that converting film material to digital media would eliminate all problems associated with film archiving. This was said following discussions about the multitude of video formats that have existed over the years.

The digital domain has had, and continues to have, its own multitude of format changes. To be seduced into thinking digital technologies will be the archive medium for motion pictures is to ignore that digital technologies are still very much in their infancy. I acknowledge that someday digital technologies may stabilize, but that day isn't yet on the horizon.

To believe that storing films in digital mediums will eliminate all problems associated with archiving film material is "technolust" at its worst. It sounds like it should work, except for one problem: will the state-of-the-art digital format you choose today be around to play back your material 20 years from now? Ten years from now? Two years?

Many people make the mistake of considering 35mm film "old" technology. Quite the contrary; film is a *mature* technology. It is stable, and not subject to variations in design that might suddenly eliminate the possibility of recovering material recorded in the medium.

The elegance of film is that in 20 or 50 years, all you will need to recover the recorded imagery is a *light* and a *lens*. There needn't be any worry about change in formats. Even if there aren't any film projectors in use 50 years from now, there will always be image capture devices — an intermediate film stock, a CCD, or some digital image capture device we can't even imagine at present. Looking at a piece of film, it's obvious how easy it is to find the image recorded there; looking at a digital tape, videodisc, magneto optical disc (name your digital medium. . .), and you can see how difficult it would be to recover the images if the technology wasn't readily available.

I'm not even addressing physical characteristics of the current digital storage mediums and their lack of stability. It concerns me when I hear people propose that stability isn't a problem, since we only need to clone the digital material before it becomes unreliable. This is seriously considered by studios for those television programs that shoot videotape.

In the case of D1 videotape, cloning would be required in about five years to be on the safe side. If all television programming were stored this way, you would be faced with cloning a season's worth of material in five years, two seasons worth in 10 years, three seasons in 15 years and so on — growing every five years into a monstrous amount of material to clone.

At a SMPTE digital imaging conference in 1993, a pro-

cont'd on p. 111

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